

المملكة العربية السعودية

وزارة التعليم

MINISTRY OF EDUCATION



لكل المهتمين و المهتمات  
بدروس و مراجع الجامعية

هام

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١٤٣٩ .. النصف الدراسي الاول .. دفعة ١٨ .. الدوري النهائي

# د. جمال الشعراوي

مريض / عزوز

(التحاش)

## Chapter (11):- Reproduction

ورقة ٧ من ١٨



Biology



Biology

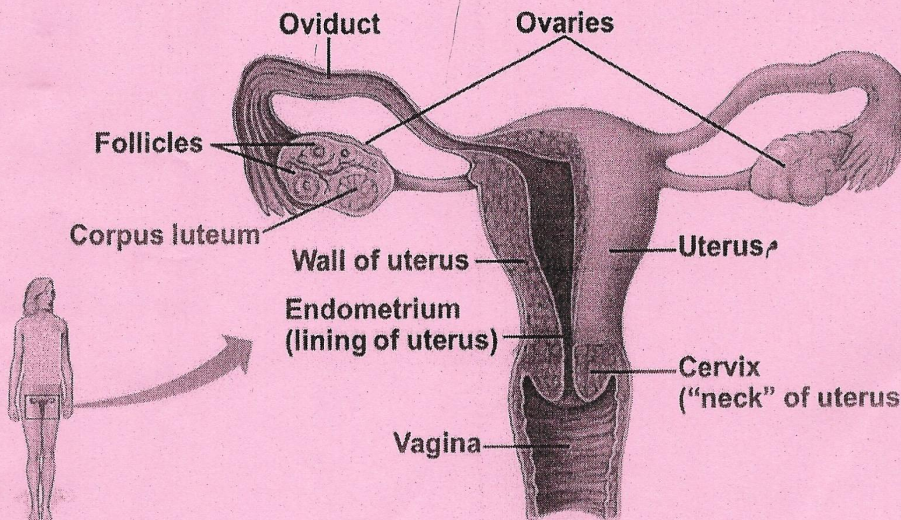


Biology



Biology

Biology



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Front view of female reproductive anatomy (upper portion)

جدة

كيمياء حيوية للكليات الطبية

أحياء



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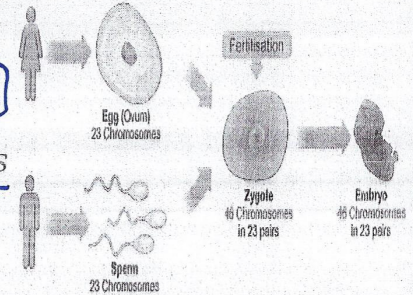


# أنواع التكاثر

## Sexual reproduction

التكاثر الجنسي

- ✓ Slow reproduction
- ✓ two parents produces genetically different offspring <sup>أولاد</sup>
- ✓ Offspring are similar to parents, but show variations in traits <sup>اختلافات</sup>
- ✓ inheritance of unique sets of genes from parents <sup>مجموعات فريدة من الجينات</sup>

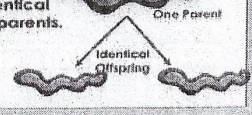


## Asexual reproduction

- ✓ Very rapid reproduction <sup>طبيعا ازدهار</sup>
- ✓ One parent produces genetically identical offspring <sup>الانقسام</sup>
- ✓ Can proceed via Budding, Fission, and Fragmentation <sup>التجزئة</sup>
- ✓ Offspring Involves inheritance of all genes from one parent <sup>كل الأوراث</sup>

### Asexual Reproduction

- One parent
- Offspring are identical to the parents.

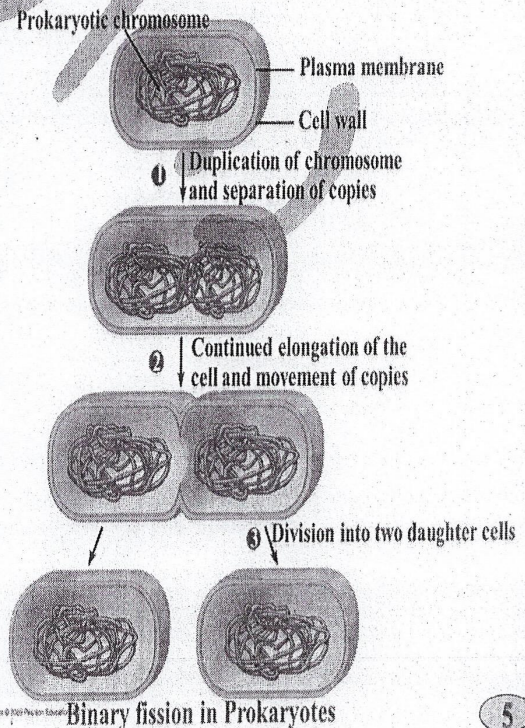


## Prokaryotes are reproduced by:-

- ✓ asexually
- ✓ Binary fission <sup>الانقسام الثنائي</sup>

### Binary fission

- ✓ means dividing in half
- ✓ Occurs in prokaryotic cells
- ✓ produces two identical cells from one cell
- ✓ resulted in duplication of a single circular chromosome
- ✓ resulted in plasma membrane growth inward at the midpoint to divide the cells



Binary fission in Prokaryotes



## تعريف الإخصاب وأنواعه

الإخصاب  
Fertilization is the union of:-

- ✓ sperm and egg to form a di...ploid zygote

جنين قسائي

In Sexual reproduction, Sperm may be transferred to female by:-

### 1) External fertilization

- ✓ Many fish and amphibian species.  
✓ Eggs and sperm are discharged near each other.

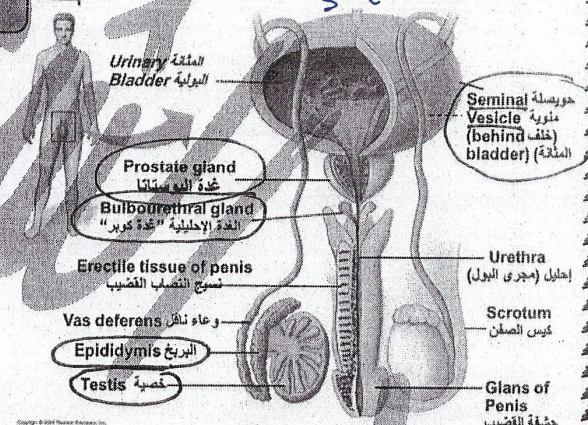
### 2) Internal fertilization

- ✓ Some fish and amphibian species  
✓ Nearly all terrestrial animals  
✓ Sperm is deposited in or near the female reproductive tract

## الجهاز التناسلي

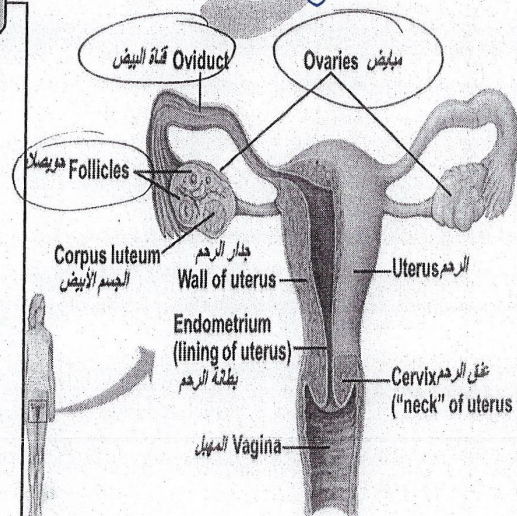
### Human Male Reproductive anatomy

- ✓ Testes produce Sperm  
✓ Epididymis stores sperm as they develop further  
✓ several glands contribute to semen  
✓ Seminal vesicles  
✓ Prostate  
✓ Bulbourethral



### Human Female Reproductive anatomy

- ✓ Oviducts convey eggs to the uterus where embryos develop  
✓ Ovaries contain follicles that nurture eggs and Produce sex hormones  
✓ An uterus opens into the vagina through the cervix  
✓ A vagina Receives the penis during sexual intercourse  
✓ A vagina Forms the birth canal.





تكوين الجنين

Both sexes in humans:-

المشتقات بين الذكور والإناث

مجموع من المبيضات

A set of gonads where gametes (sperms & ovum) are produced

Ducts for gamete transport

Structures for copulation

أعضاء الجماع

Hermaphroditism

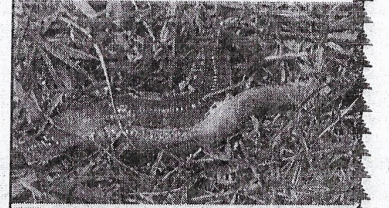
(الخنثى)

فرد واحد

One individual with male and female reproductive systems

Easier to find a mate for animals less mobile or solitary.

Hermaphroditic earthworms mating



## تكوين الحيوانات المنوية والبويضات

عملية تكوين الحيوانات المنوية

Spermatogenesis

وهذا ما يسمى بتكوين حيوية

is (the sperm formation) occurs in seminiferous tubules in testes

Primary spermatocytes formed by mitosis

تكون ب

Primary spermatocytes divide by meiosis I to produce secondary spermatocytes

Secondary spermatocytes divide by meiosis II to produce spermatids.

Round spermatids differentiate into elongate sperm.

الحيوانات المنوية

عملية تكوين البويضات

Oogenesis

Is (the egg formation) Occurs in ovaries

Begins before birth: diploid cells start meiosis and stop.

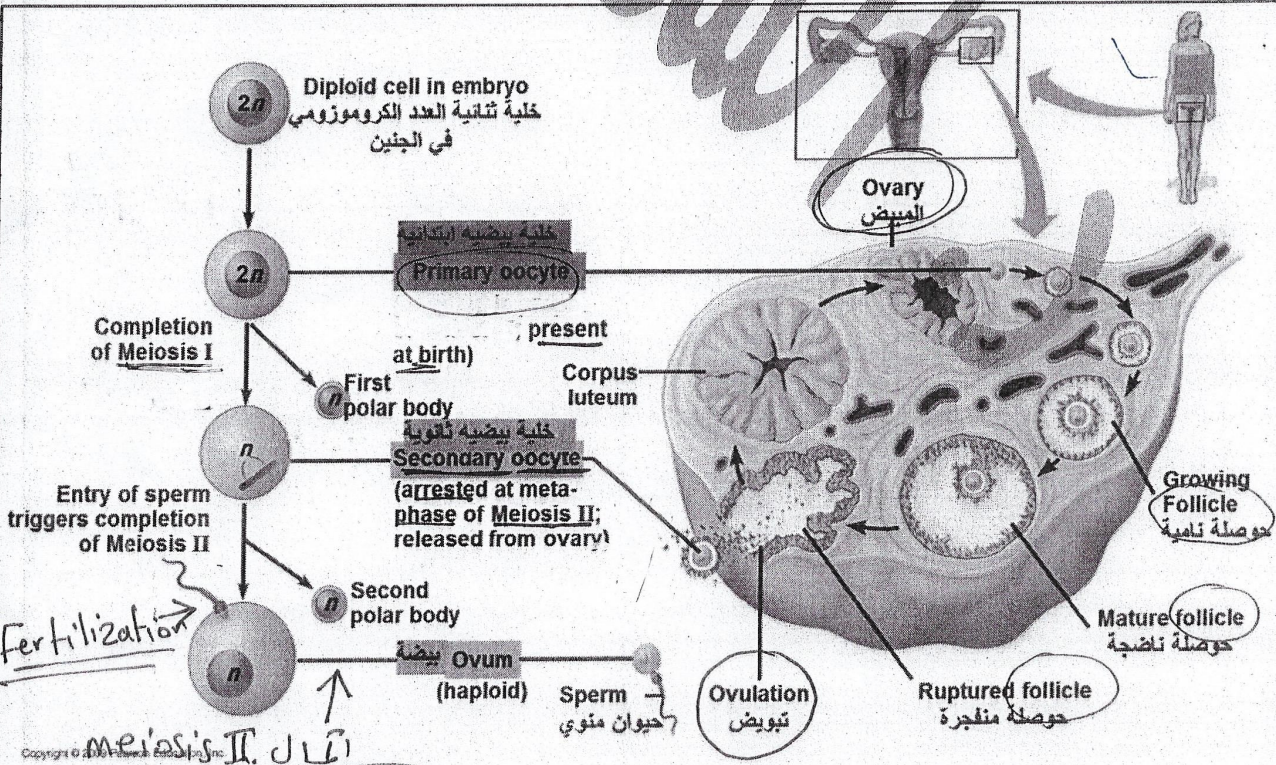
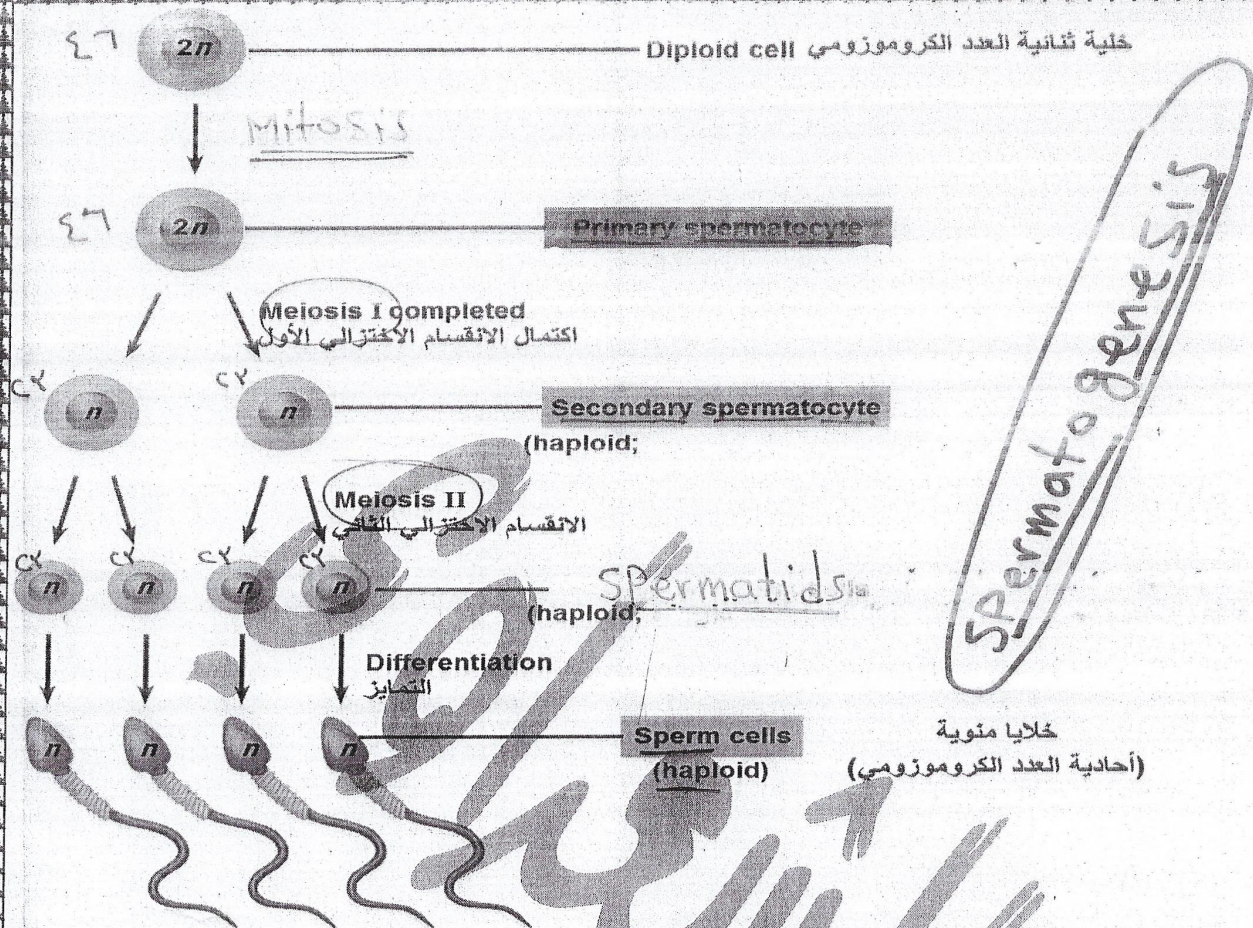
Each month about one primary oocyte resumes meiosis.

A secondary oocyte arrested at metaphase of meiosis II is ovulated

Meiosis of the ovum is completed after fertilization

تتم بعد الإخصاب





### Oogenesis and the development of an ovarian follicle

عملية تكوين البويض ونضوج حوصلة مبيضية

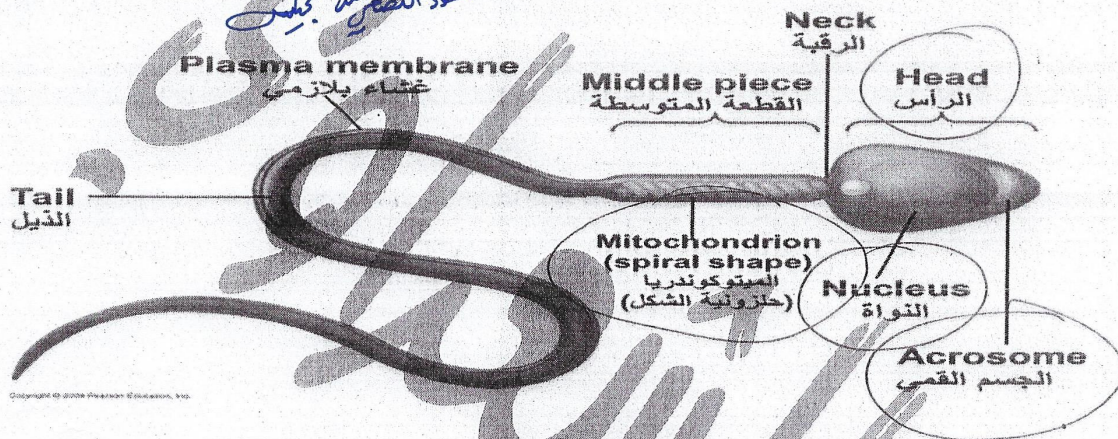


## تركيب الحيوان المنوي

الحيوان المنوي

Sperm are adapted to reach and fertilize an egg via :-

- ✓ Streamlined shape moves more easily through fluids
- ✓ many mitochondria provide ATP for tail movements
- ✓ Head contains an acrosome containing penetrating enzymes
- ✓ Head contains a ploid nucleus



## الدورة الشهرية والبيضية

Ovarian and menstrual cycles occur about every 28 days.

Hormones synchronize cyclic changes in the ovary and uterus

Hypothalamus signals the anterior pituitary to secrete:-

✓ Follicle-stimulating hormone (FSH): Growth of a follicle

✓ Leuteinizing hormone (LH): Ovulation

After ovulation, empty ovarian follicle becomes corpus luteum

Corpus luteum secretes estrogen and progesterone hormones which:-

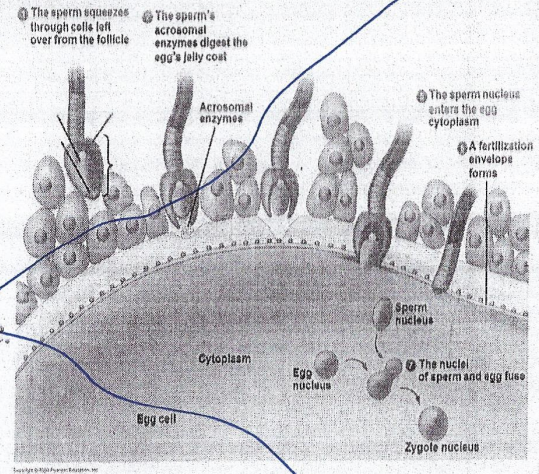
- ✓ Stimulate the endometrium to thicken
- ✓ Prepare the uterus for implantation of the embryo
- ✓ Inhibit hypothalamus, reducing FSH and LH secretion



## أحداث الإخصاب

### Fertilization events: →

- ✓ Sperm squeeze past follicle cells.
- ✓ Acrosomal enzymes pierce egg's coat.
- ✓ Sperm binds to vitelline layer.
- ✓ Sperm and egg plasma membranes fuse.
- ✓ Egg is stimulated to develop further.
- ✓ Egg and sperm nuclei fuse.



### If egg is fertilized

إذا تم إخصاب البويضة

(د البينسيج تخرج هرمونا ج)

- ✓ Embryo releases hormones that maintain the uterine lining
- ✓ Menstruation does not occur

### If egg is not fertilized

البويضة لم تخصب

الجسماز لم يند

- ✓ Drop in LH shuts down corpus luteum and its hormones
- ✓ Menstruation is triggered
- ✓ Hypothalamus and pituitary stimulate development of a new follicle

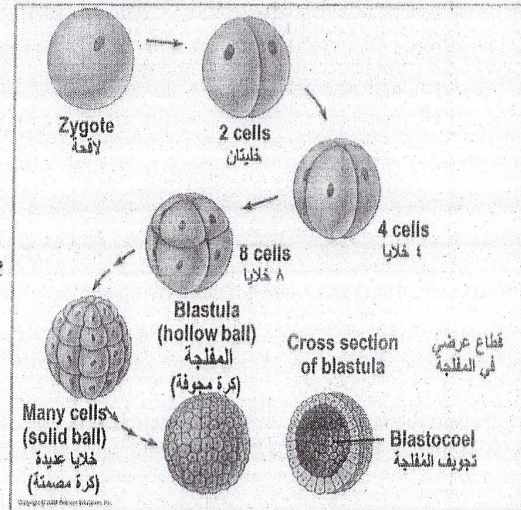


## مراحل التطور الجنيني

### A) Cleavage :-

الانقسامات

- ✓ First <sup>مرحلة جبر</sup>
- ✓ is a rapid series of cell divisions <sup>سلسلة سريعة من الخلايا</sup>
- ✓ produces a ball of cells from the zygote <sup>كروية من الخلايا</sup>
- called blastula
- ✓ new cells are smaller in size
- ✓ Embryo is not getting larger <sup>الجنين</sup>

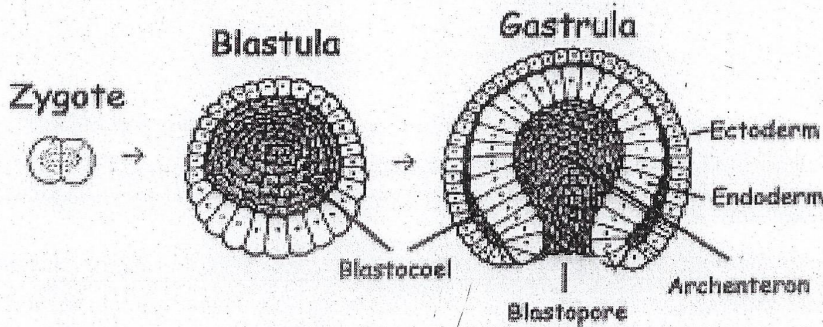


The blastula (ball of similar cells (resulted from cleavage)) go to gastrulation

### B) Gastrula :-

(جنين ذو ثلاث طبقات)

- ✓ Second
- ✓ Produces a three-layered embryo <sup>جدره عبي</sup>
- ✓ 1) Ectoderm (outside):- becomes skin and nervous systems
- ✓ 2) Endoderm (inside):- becomes digestive tract. <sup>قناة هاضم</sup>
- ✓ 3) Mesoderm (in middle):- muscle and bone. <sup>عظام وعضلات</sup>



آخر سبابة ١١



١٤٣٩ .. النصف الدراسي الاول .. دفعة ١٨ .. الدوري النهائي

# د. جمال الشعراوي

وقت / عزوز

ورقات

## Chapter (11):- Reproduction



Biology

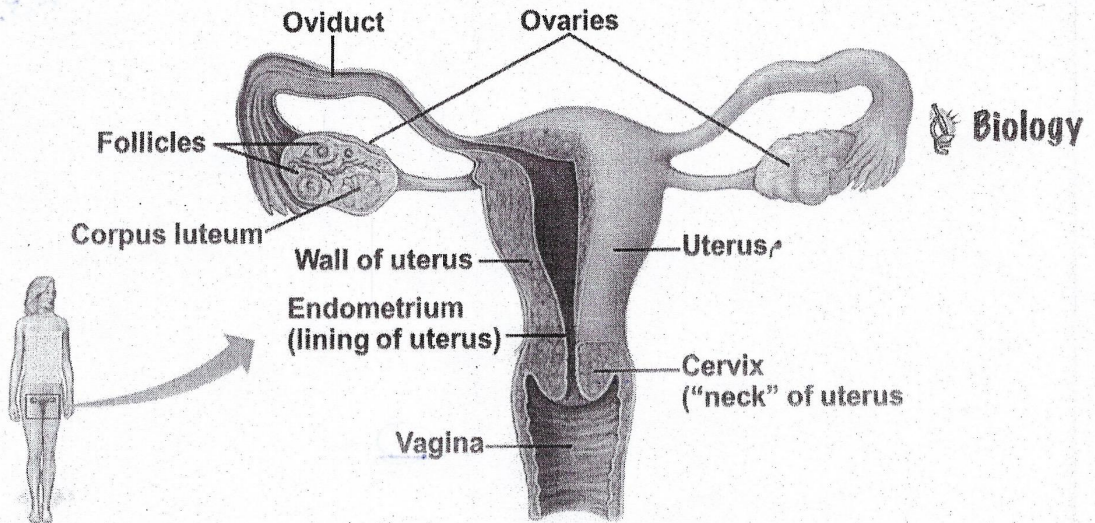
Biology



Biology

Biology

Biology



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Front view of female reproductive anatomy (upper portion)

جدة

كيمياء حيوية للكليات الطبية

أحياء




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- ✓ inheritance of unique sets of genes from two parents

- 

الإقسام  
Binary fission

- ✓ Budding  
✓ Fragmentation

- there is no answer
- are different from the original cell or organism
- Involves inheritance of all genes from two parents
- Involves inheritance of all genes from one parent

$\chi^c$  mitosis  
 $\chi^c$  meiosis  
 $\chi^c$  asexually  
 $\chi^c$  mitosis AND meiosis

- ✓ Binary fission

Binary fission      X<sup>c</sup> sexually

asexually AND binary fission      asexually



7) Binary fission

- ✗ ☐ Occurs in eukaryotic cells
- ☒ means dividing in half
- ☐ produces two different cells from one cell
- ✗ ☐ there is no answer

8) Fertilization is the union of

- ☐ All other answers are correct
- ☐ testis and ovary to form a sex organ
- ☐ sperm and egg to form a sex organ
- ☒ sperm and egg to form a diploid zygote ← not haploid

9) In Sexual reproduction, sperm may be transferred to the female by

- ✗ ☐ Insects الحشرات
- ☒ Internal fertilization
- ✗ ☐ All other answers are correct
- ✗ ☐ Wind الريح
- ✓ ☐ External fertilization

10) Human Male Reproductive anatomy has

- ☐ Ovaries contain follicles that Nurture eggs and Produce sex hormones
- ☐ The uterus opens into the vagina through the cervix
- ☒ Testes produce Sperm
- ☐ there is no answer

11) Human Female Reproductive anatomy has

- ☒ Oviducts convey eggs to the uterus where embryos develop
- ☐ Testes produce Sperm
- ☐ Epididymis stores sperm as they develop further
- ✗ ☐ All other answers are correct



## 12) The vagina

✓ Forms the birth canal

- ☒ Receive the egg from the ovary
- ☒ Is the site for egg fertilization
- ☒ Receives the penis during sexual intercourse
- ☒ Is for external fertilization

## 13) Both sexes in humans have

✓ Ducts for gamete transport

✓ Structures for copulation

- ☐ Carpels كروية
- ☒ A set of gonads where gametes (sperms & ovum) are produced
- ☐ Sepals سبلات
- ☐ Sepals AND Carpels

## 14) Hermaphroditism

(الخنثى)

- ☐ Two individuals with male and female reproductive systems
- ☒ One individual with male and female
- ☒ One parent produces genetically identical offspring
- ☐ One individual with male reproductive system and the other with female reproductive systems

## 15) Which of the following statement is true?

- ☐ Spermatogenesis (the sperm formation) Occurs in Ovaries
- ☐ there is no answer
- ☒ Spermatogenesis (the sperm formation) Occurs in seminiferous tubules
- ☐ Oogenesis (the egg formation) Occurs in testes

## 16) Menstrual Cycles Occur about every days

- ☐ 29
- ☒ 28
- ☐ 21
- ☐ there is no answer.



17) Sperm are adapted to reach and fertilize an egg via \_\_\_\_\_

- ☐ Less mitochondria provide ATP for tail movements
- ☐ Cubical shape moves more easily through fluids
- ☒ Many mitochondria provide ATP for tail movements
- ☐ Head contains a diploid nucleus



18) Cleavage \_\_\_\_\_

- ☐ there is no answer
- ☒ is a rapid series of cell divisions
- ☐ Embryo is getting <sup>not</sup> larger
- ☐ is a slow series of cell divisions



19) Gastrula produces \_\_\_\_\_

- ☐ a four-layered embryo
- ☒ a three-layered embryo
- ☐ a two-layered embryo
- ☐ a one-layered embryo

20) The endoderm layer inside the human embryo (gastrula) become \_\_\_\_\_

- A) Kidney
- B) Skin and nervous system
- C) Muscle and bones
- ☒ D) Digestive tract

21) The ectoderm layer outside the human embryo (gastrula) become \_\_\_\_\_

- A) Kidney
- ☒ B) Skin and nervous system
- C) Muscle and bones
- D) Digestive tract

22) The mesoderm layer in middle the human embryo (gastrula) become \_\_\_\_\_

- A) Kidney
- B) Skin and nervous system
- ☒ C) Muscle and bones
- D) Digestive tract

23) Which of the following is Contribute to semen production?

- ☒ A) Epididymis
- ☒ B) prostate
- ☒ C) bulbourethral
- D) All of above are correct



24) The uterus opens into the \_\_\_\_\_ through the \_\_\_\_\_

A) penis .....testis

B) ovary ..... oviduct

✓ C) Vagina ..... cervix

D) Follicles.....embryo

25) A women cervix opens to the \_\_\_\_\_, where embryo development

✓ A) Uterus الرحم

B) Vagina نغوى الجنين

C) Ovary

D) Oviduct

26) The female's \_\_\_\_\_, receives the penis during sexual intercourse and forms the birth canal.

A) Oviducts

✓ B) vagina

C) Ovary

D) uterus

27) Follicle stimulating hormone (FSH) stimulates the growth of \_\_\_\_\_

A) Interstitial follicles

✓ B) Ovarian follicles

C) The corpus leuteum follicles

D) Sperm cells

28) Leutenizing hormone (LH) stimulates \_\_\_\_\_

A) Interstitial follicles

B) Ovarian follicles

✓ C) Ovulation

D) Sperm cells

29) Estrogen and progesterone are produced by \_\_\_\_\_

A) anterior pituitary.

✓ B) corpus luteum

C) hypothalamus.

D) ovarian follicle

30) Meiosis of the ovum is completed after \_\_\_\_\_

A) Regeneration

✓ B) fertilization

C) Packing

D) manufacturing

31) Many aquatic invertebrates and most fishes and amphibians exhibit \_\_\_\_\_

A) Internal fertilization

✓ B) External fertilization الإخصاب الخارجي

C) Copulation

D) regeneration




١٤٣٩ .. النصف الدراسي الاول .. دفعة ١٨ .. الدوري النهائي

# د. جمال الشعراوي


جزء ١


## Chapter (12):- Genetics


ورقة ٥


 Biology

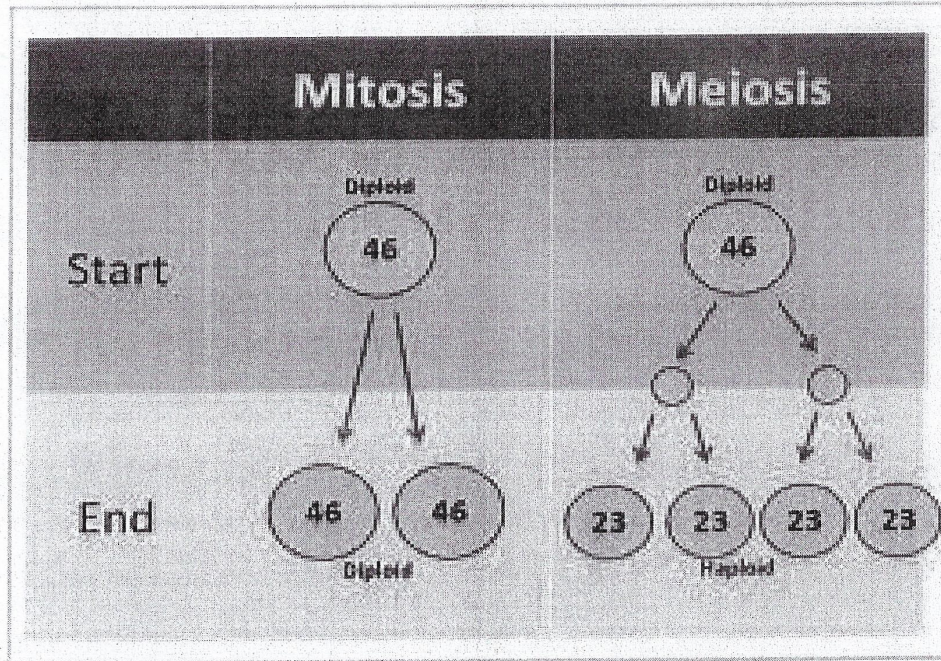
 Biology

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أحياء كيمياء حيوية للكليات الطبية جدة



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## أنواع الكروموسومات

☞ **Pairs of autosomes:** → الكروموسومات الجسدية

☞ **Homologous chromosomes are:** →

- ✓ Matched in Length
- ✓ matched in Gene locations
- ✓ matched in Centromere position
- ✓ The same size
- ✓ have the same genetic information

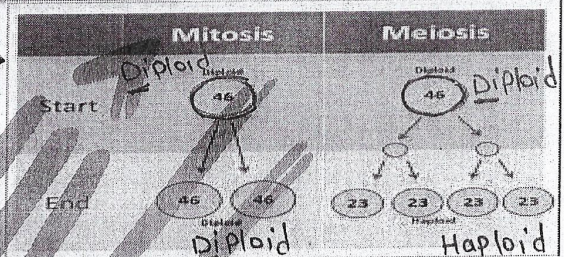
☞ **Sex chromosomes are :** →

- ✓ different in Length
- ✓ different in Gene locations
- ✓ Different in Centromere position
- ✓ have different size

## انقسام الخلايا الحقيقية

☞ **Eukaryotic Cell Division includes:** → (انقسامات الخلية الحقيقية تشمل)

- ✓ Mitosis
- ✓ Meiosis



## تضاعف الخلية قبل الانقسام

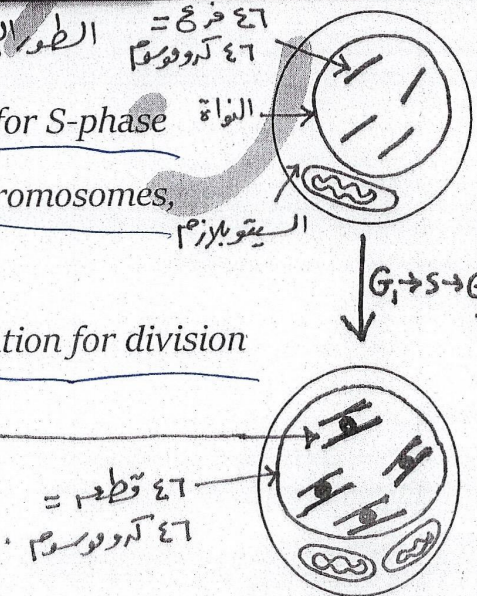
☞ **The Interphase (G<sub>1</sub>, S, G<sub>2</sub>)** ← الطور البيني للتضاعف

- ✓ **G<sub>1</sub>** :- first gap phase, growth and prepares for S-phase
- ✓ **S** :- DNA synthesis phase, duplication of chromosomes, each becomes two sister chromatids
- ✓ **G<sub>2</sub>** :- second gap phase, growth and preparation for division

☞ **Duplicated chromosome is made of:** →

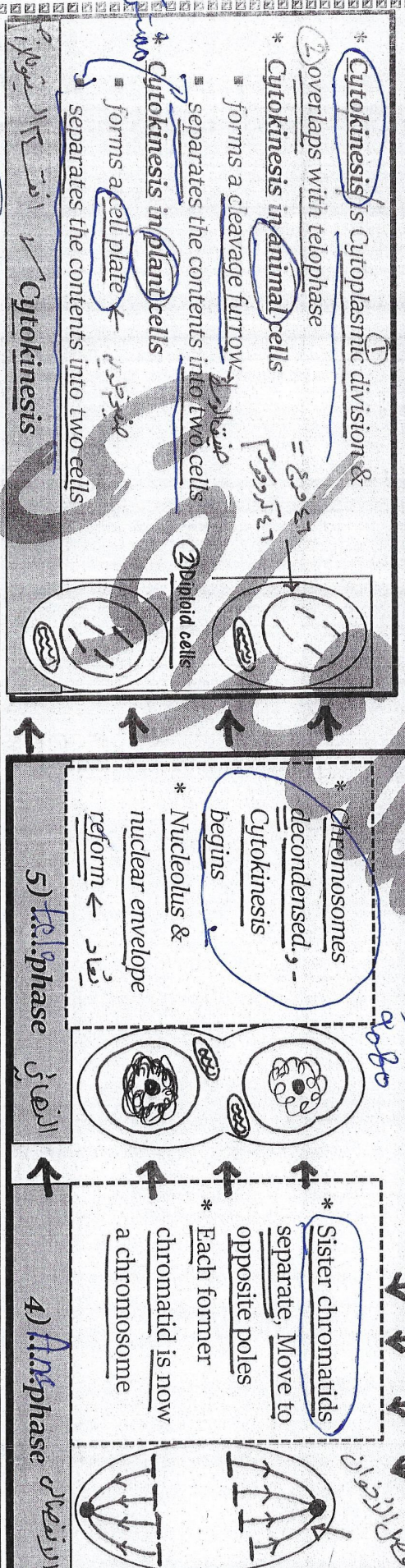
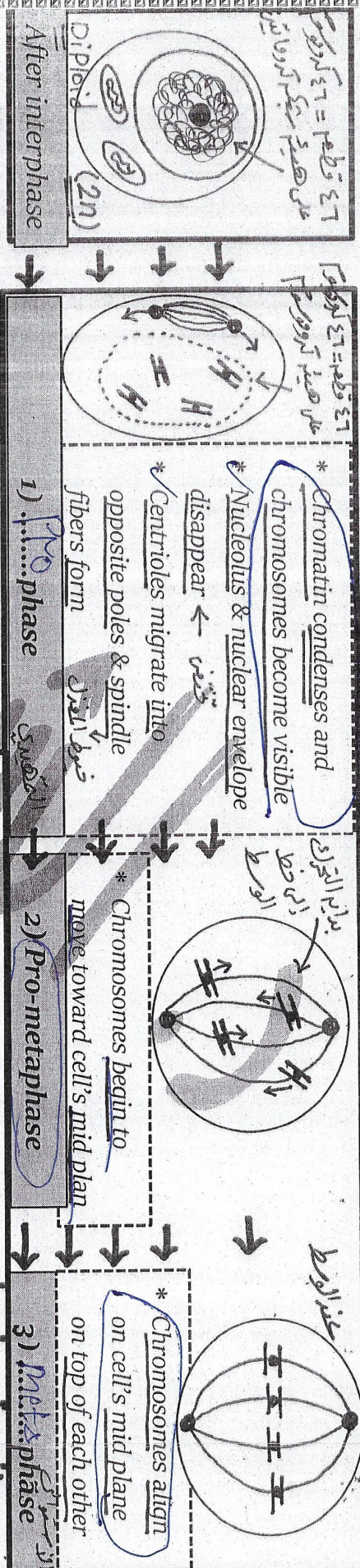
- ✓ Two Sister chromatids
- ✓ Two identical DNA molecules

☞ **Sister chromatids are joined at a narrow region called the centromere**





# الانقسام اطيوزي

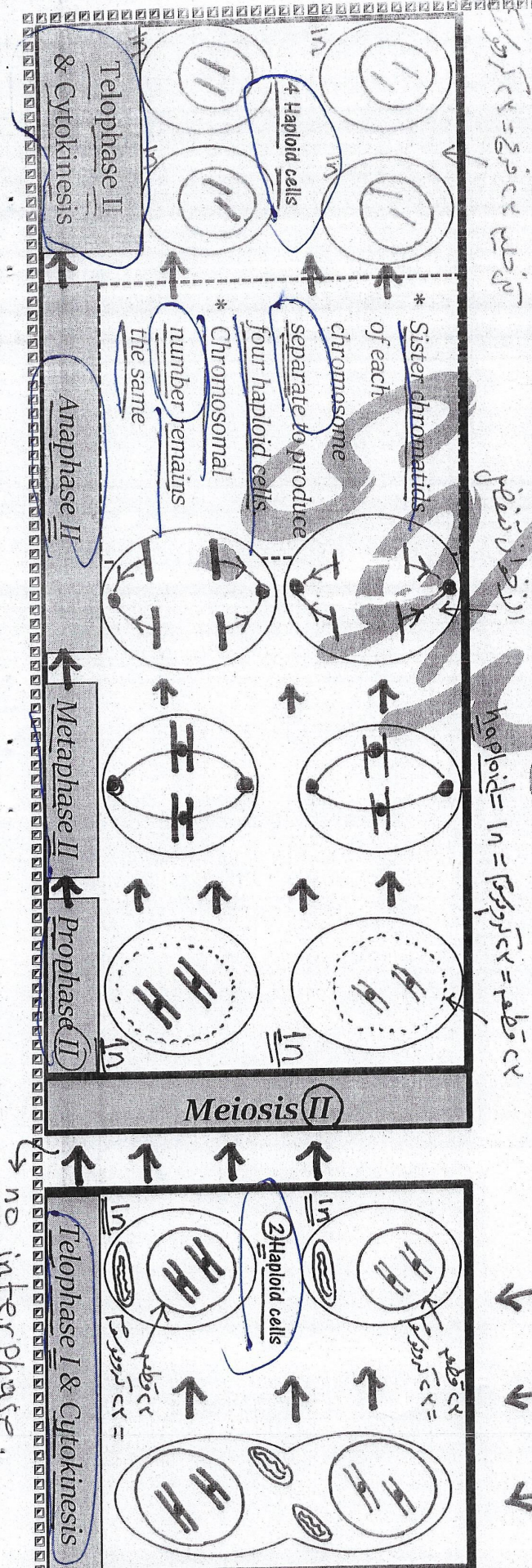
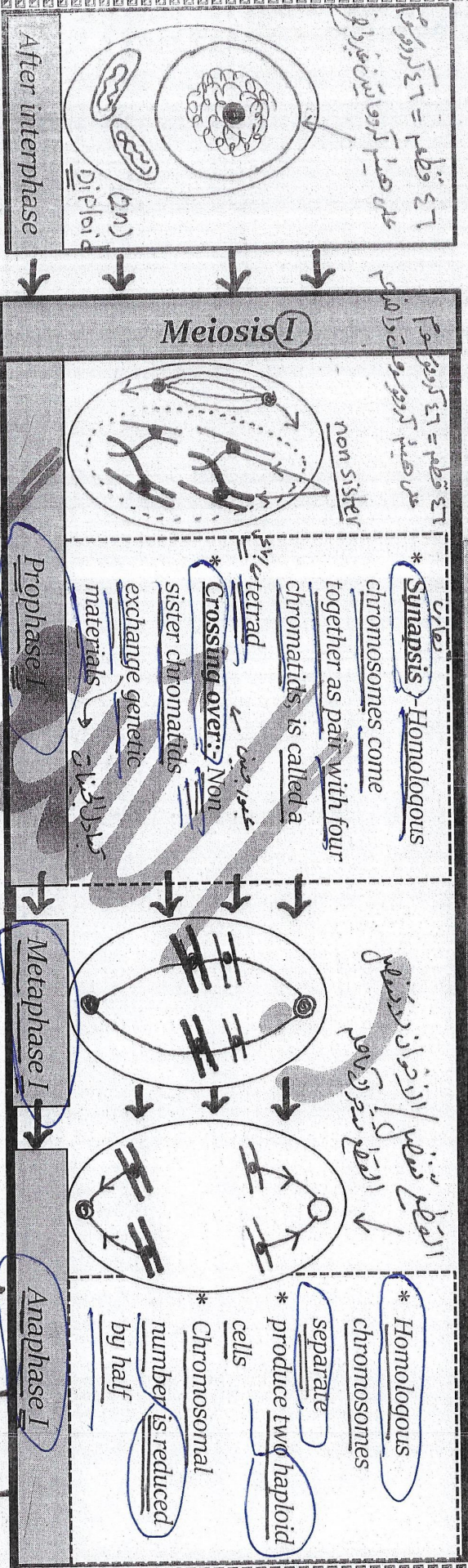


**Cell cycle** ← (دورة الخلية)  
 A) Interphase (long time):- (الانقسام الطويل)  
 G1 → S → G2

B) Mitotic phase (M):- (الطور الانقسامي)  
 1) Prophase, Prometaphase, Metaphase, Anaphase, and Telophase  
 2) Cytokinesis



# الانقسام الطيوزي





☞ Synapsis : → التقارب

✓ Meiosis I

✓ Prophase of meiosis I

☞ Tetrads : → تكون الرباعي

✓ Meiosis I

✓ Prophase of meiosis I

☞ Crossing over : → العبور الجيني

✓ Meiosis I

✓ Prophase of meiosis I

☞ homologous chromosomes separate : →

القطع وتفصل

✓ Meiosis I

✓ Anaphase of meiosis I

☞ Sister chromatids separate : →

✓ Mitosis

✓ Anaphase

✓ Meiosis II

☞ During meiosis I : →

✓ The chromosome number is reduced by half

✓ Homologous chromosomes separate

✓ Haploid cell is produced

☞ During meiosis II:

✓ chromosome number remains the same

✓ sister chromatids separate

✓ haploid cell is produced

☞ Meiosis : →

✓ has two interphases

✓ has two divisions

✓ has one S phase

✓ has two cytokinesis

✓ occurs in the ovaries

✓ occurs in the testis

✓ occurs in the sex organs

✓ converts diploid nuclei to haploid nuclei

✓ produces haploid cells

✓ produces sperm

✓ produces egg

✓ produces sex cell

✓ produces gametes

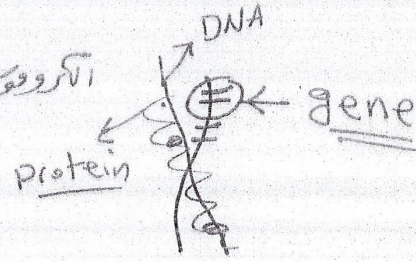
الزواج = البويضات والحيوانات المنوية



✍ Mitosis preserves chromosome number in eukaryotic cell

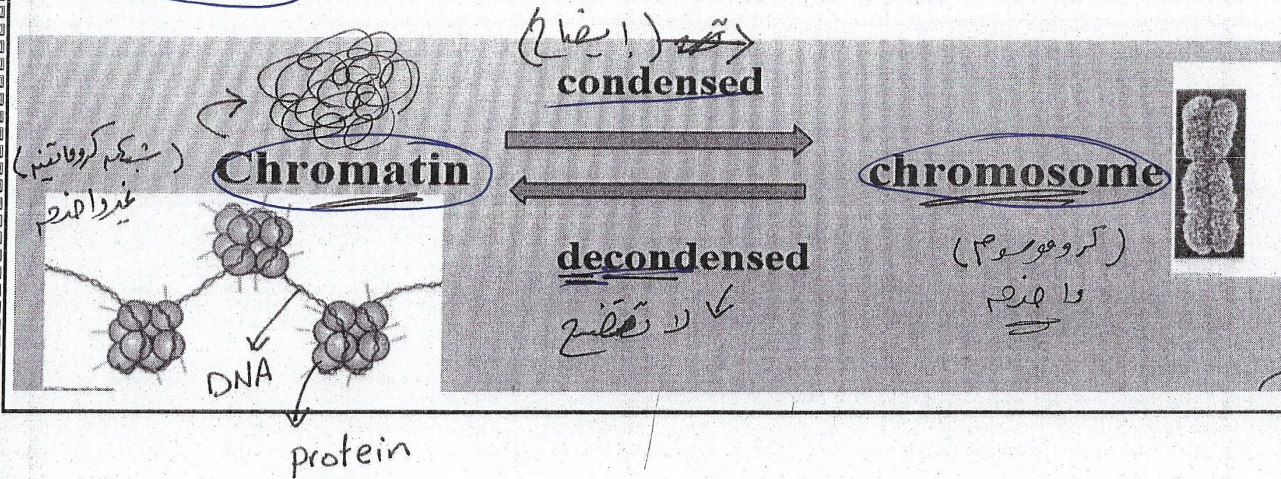
✍ Eukaryotic chromosomes

- ✓ carry the genetic information.
- ✓ Contain DNA and protein



✍ When cells are not dividing, the genetic material is decondensed and is called chromatin

✍ When cells are dividing, the genetic material is condensed and is called chromosome



ما وراء

بالتوفيق والنجاح - -

آخر جزئ ① - ثابتة ②



١٤٣٩.. النصف الدراسي الاول .. دفعة ١٨.. الدوري النهائي

# د. جمال الشعراوي

تست / عزوز

ورقات ٧

جزء ١

## Chapter (12):- Genetics



Biology



Biology

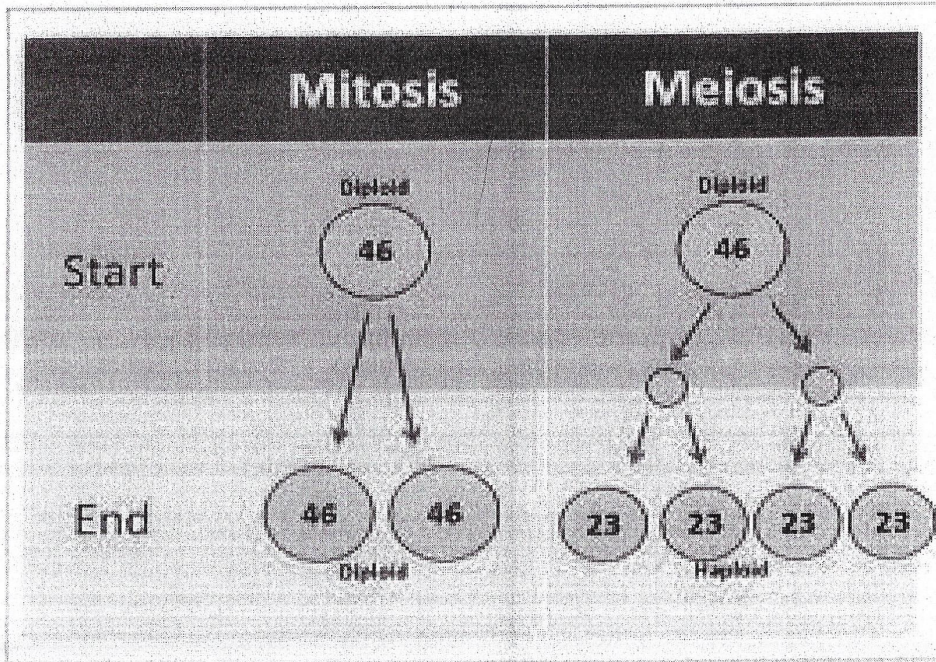


Biology



Biology

Biology



Biology

جدة

كيمياء حيوية للكليات الطبية

أحياء



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1) Pairs of autosomes \_\_\_\_\_

- ☐ different in Centromere position
- ☐ different in Centromere position AND have different size
- ☐ have different size
- ☐ matched in Length

✓ Have the same...  
✓ Matched in ...

2) Homologous chromosomes are \_\_\_\_\_

- ☐ different in Gene locations
- ☐ All other answers are correct
- ☐ matched in Centromere position
- ☐ different in Centromere position

✓ Have the same...  
✓ Matched in ...

3) Sex chromosomes are \_\_\_\_\_

- ☐ matched in Centromere position
- ☐ matched in Length
- ☐ different in Length
- ☐ there is no answer

✓ Different in ...

4) Eukaryotic Cell Division includes \_\_\_\_\_

- ☒ Binary fission
- ☐ meiosis
- ☒ budding
- ☐ there is no answer

✓ Mitosis  
✓ produces two identical cells from one cell

5) The sequence of Eukaryotic Cell Cycle is \_\_\_\_\_

- ☒ G<sub>1</sub>, S, M, and G<sub>2</sub>
- ☐ G<sub>1</sub>, S, G<sub>2</sub>, and M
- ☒ S, G<sub>1</sub>, G<sub>2</sub>, and M
- ☐ All other answers are correct

6) \_\_\_\_\_ is a part of Eukaryotic Cell Cycle

- ☐ G<sub>1</sub>
- ☐ M
- ☐ G<sub>1</sub> AND G<sub>2</sub>
- ☐ G<sub>2</sub>

✓ G<sub>1</sub>  
✓ G<sub>2</sub>  
✓ S



7) \_\_\_\_\_ is a part of Eukaryotic Cell Cycle

- ☐ G<sub>1</sub>
☐ G<sub>2</sub>  
☐ S
 ☐ All other answers are correct

8) The Interphase of Eukaryotic Cell Cycle includes \_\_\_\_\_ phases

- ☐ G<sub>2</sub>, S, and M ✗  
☐ G<sub>1</sub>, and G<sub>2</sub>
☒ M, G<sub>1</sub>, and G<sub>2</sub>

9) G<sub>1</sub> \_\_\_\_\_

- ☐ first gap phase, growth and prepares for S-phase  
☐ second gap phase, growth and preparation for division  
☐ DNA synthesis phase, duplication of chromosomes, each becomes two sister chromatids  
☐ All other answers are correct

10) G<sub>2</sub> \_\_\_\_\_

- ☐ first gap phase, growth and prepares for S-phase  
☐ second gap phase, growth and preparation for division  
☐ DNA synthesis phase, duplication of chromosomes, each becomes two sister chromatids  
☐ All other answers are correct

11) S \_\_\_\_\_

- ☐ First gap phase, growth and prepares for S-phase  
☐ There is no answer  
☐ DNA synthesis phase, duplication of chromosomes, each becomes two sister chromatids  
☐ second gap phase, growth and preparation for division

12) \_\_\_\_\_ is (are) first gap phase, growth and prepares for S-phase

- ☐ S
 ☐ there is no answer  
☐ G<sub>1</sub>
☐ G<sub>2</sub>



19) The all Mitotic phases of Eukaryotic Cell Cycle are \_\_\_\_\_

- ☐ Prophase, Prometaphase, Metaphase, and Telophase
- ☐ Prophase, Prometaphase, Anaphase, and Telophase
- ☐ Prophase, Prometaphase, Metaphase, and Anaphase
- ☒ Prophase, Prometaphase, Metaphase, Anaphase, and Telophase

20) \_\_\_\_\_ is (are) Chromatin condenses and chromosomes become visible

- ☐ Anaphase
- ☐ Prophase
- ☐ Metaphase
- ☐ All other answers are correct

21) \_\_\_\_\_ is (are) Chromosomes align on cells midplane on top of each other

- ☐ Prophase
- ☐ Metaphase
- ☐ Telophase
- ☐ there is no answer

22) \_\_\_\_\_ is (are) Sister chromatids separate, move to opposite poles.

- ☐ Anaphase
- ☐ Prophase
- ☐ Metaphase
- ☐ All other answers are correct

23) \_\_\_\_\_ is (are) Sister chromatids separate, move to opposite poles.

- ☐ Prophase
- ☐ Metaphase
- ☐ Telophase
- ☐ there is no answer

24) \_\_\_\_\_ is (are) Chromosomes decondensed. Cytokinesis begins

- ☐ Telophase
- ☐ Metaphase
- ☐ Prophase
- ☐ All other answers are correct

25) Prophase \_\_\_\_\_

- ☐ Chromosomes decondensed. Cytokinesis begins
- ☐ Chromosomes align on cells midplane on top of each other.
- ☐ there is no answer
- ☒ Chromatin condenses and chromosomes become visible.



26) Metaphase

- ☒ Chromosomes decondensed. Cytokinesis begins
- ☒ Chromosomes align on cells midplane on top of each other.
- ☐ there is no answer
- ☒ Chromatin condenses and chromosomes become visible.

27) Anaphase

- ☒ Chromosomes decondensed. Cytokinesis begins
- ☒ Sister chromatids separate, move to opposite poles.
- ☒ Chromosomes align on cells midplane on top of each other.
- ☒ Chromatin condenses and chromosomes become visible.

28) Telophase

- ☒ Chromosomes decondensed. Cytokinesis begins
- ☒ Chromosomes align on cells midplane on top of each other.
- ☐ there is no answer
- ☒ Chromatin condenses and chromosomes become visible.

29) Cytoplasmic division

- ☐ is called Cytokinesis
- ☒ is called Cytosol
- ☒ is called Cytogenesis
- ☒ overlaps with Anaphase

✓ overlaps with telophase

30) Cytokinesis in animal cells

- ☐ A cell plate forms in the middle from vesicles
- ☐ Forms a cell plate
- ☐ forms a cleavage furrow
- ☐ All other answers are correct

✓ separates the contents into two cells



31) Cytokinesis in plant cells \_\_\_\_\_

- ☐ forms a cell plate AND separates the contents into two cells
- ✓ ☒ forms a cell plate
- ✓ ☒ separates the contents into two cells
- ✗ ☐ forms a cleavage furrow

32) Synapsis occurs during \_\_\_\_\_

- ✗ ☐ prophase of meiosis II AND mitosis
- ☐ meiosis I
- ☐ prophase of meiosis II ✗
- ☐ mitosis ✗

✓ prophase of meiosis I33) Synapsis occurs during \_\_\_\_\_

- ☐ prophase of meiosis I AND meiosis I
- ✓ ☒ prophase of meiosis I
- ✗ ☐ metaphase of meiosis II ✗
- ✓ ☒ meiosis I

34) Tetrads forms during \_\_\_\_\_

- ✗ ☐ mitosis ✗
- ✓ ☒ meiosis I
- ✓ ☒ metaphase of meiosis I
- ✓ ☒ metaphase of meiosis I AND meiosis I

✓ prophase of meiosis I35) Crossing over occurs during \_\_\_\_\_

- ☐ Metaphase of meiosis II ✗
- ☐ Prophase of meiosis I
- ✗ ☐ meiosis II AND metaphase of meiosis II
- ☐ meiosis II ✗

✓ meiosis I✓ metaphase of meiosis I



36) Sister chromatids separate during \_\_\_\_\_

☒ mitosis

☒ telophase

☒ meiosis II

☒ Anaphase

☒ mitosis I

37) Sister chromatids separate during \_\_\_\_\_

☒ meiosis II

☒ Anaphase

☒ mitosis

مع الزرع All other answers are correct

38) homologous chromosomes separate during \_\_\_\_\_

☐ meiosis II

☒ Anaphase ←

☐ meiosis I AND Anaphase

☐ meiosis I

حقا mitosis

39) During meiosis I \_\_\_\_\_

☐ sister chromatids separate

☒ homologous chromosomes separate

☐ diploid cell is produced

☒ haploid cell is produced

☐ The chromosome number is reduced by half  $2n$  to  $1n$

☐ All other answers are correct

40) During meiosis II \_\_\_\_\_

☐ The chromosome number is reduced by half

☐ sister chromatids separate

☒ chromosome number remains the same

☐ All other answers are correct

☒ haploid cell is produced

☐ homologous chromosomes separate

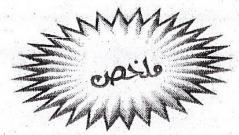
41) Meiosis \_\_\_\_\_

☐ has one interphase

☒ has one cytokinesis

☒ produces diploid cells

☒ has two interphases





42) Meiosis

☒ has two divisions AND has one S phase الانقسام

☐ has two interphases

☒ has one S phase

☒ has two divisions

43) The genetic material is duplicated during \_\_\_\_\_ of the cell cycle.

A) Mitotic phase

☒ B) S-phase

C) G<sub>2</sub>

D) telophase

44) Replicate copies of each chromosome are called \_\_\_\_\_ and are joined by \_\_\_\_\_ النسخ المتضاعفة

A) homologous / centromere.

B) sister chromatids / kinetochore.

☒ C) sister chromatids / centromere.

D) sister chromatids / spindle

45) Condensed DNA and protein complex, make up \_\_\_\_\_

A) RNA

B) gene

☒ C) Chromosome

D) chromatin

46) When cell is not dividing, the genetic material is decondensed and is called \_\_\_\_\_

A) Lysosome

☒ B) chromatin

C) Chromosome

D) None of the above

الانقسام



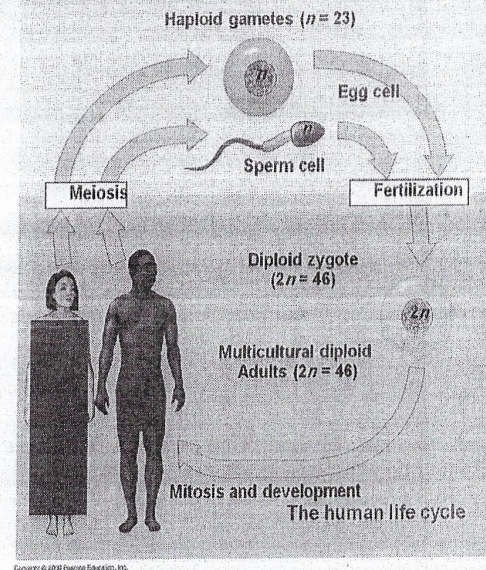
## يوجد نوعين من الخلايا في جسمنا

**Haploid cells :-** (خلية نصفية)

- ✓ Are sex cells (sperm or egg)
- ✓ have one set of chromosomes ( $1n$ )
- ✓ Produced by meiosis

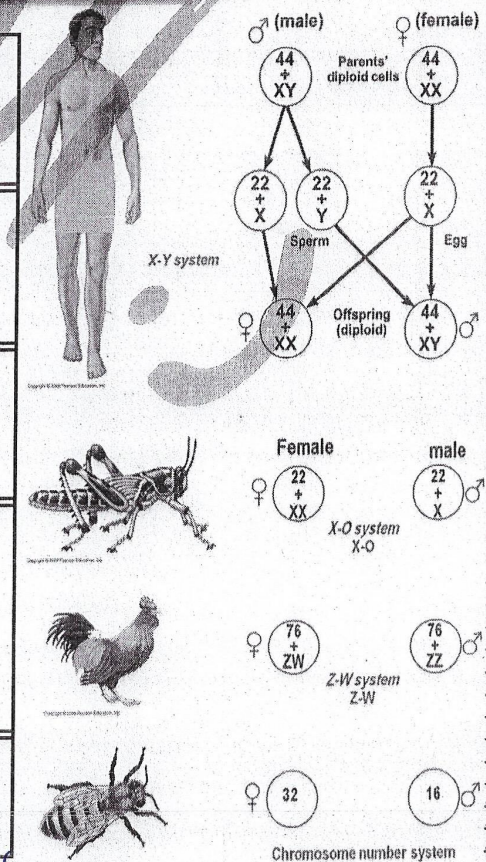
**Diploid cells :-** (خلية فردية)

- ✓ Are mainly somatic cells
- ✓ have two homologous sets of chromosomes ( $2n$ )
- ✓ Produced by mitosis division



## تحديد نوع الجنس في الكائنات الحية

الكائنات الحية	Sex chromosome system	Female	Male
mammals	<u>X-Y</u>	<u>XX</u>	<u>XY</u>
fruit flies نمل الفاكهة	<u>X-Y</u>	<u>XX</u>	<u>XY</u>
Grasshopper الجراد	<u>X-O</u>	<u>XX</u>	<u>XO</u>
Roaches الصراصير	<u>X-O</u>	<u>XX</u>	<u>XO</u>
in birds الطيور	<u>Z-W</u>	<u>ZW</u>	<u>ZZ</u>
butterflies العثرة	<u>Z-W</u>	<u>ZW</u>	<u>ZZ</u>
some fishes بعض الأسماك	<u>Z-W</u>	<u>ZW</u>	<u>ZZ</u>
ants and bees النمل والنحل	Chromosome number	Diploid (32)	Haploid (16)





## الجين وانواع الأليلات

### Genes:

- ✓ information units in chromosomes

### alleles:

- ✓ Is copy of a gene
- ✓ Is alternative form gene

### Locus (loci)

- ✓ Site of a gene on the chromosome
- Each trait = 1 gene = 2 alleles
- One allele from each parent
- Each gamete (sperm or egg) has only one allele.

### Homozygous:-

- ✓ Two identical alleles
- ✓ e.g. AA or aa.

### heterozygous :-

- ✓ Two different alleles
- ✓ e.g. Aa or AB

### Dominant allele:-

- ✓ Alleles that is expressed in the heterozygous
- ✓ masks expression of a recessive allele

### Recessive allele :-

- ✓ Alleles that is not expressed in heterozygous

## A pedigree

- ✓ Shows the inheritance of a trait in a family through multiple generations
- ✓ Can also be used to deduce genotypes of family members.
- ✓ Important in genetic counseling.

الرمز	Female	Male
	Circle	Square
Affected	Filled (closed)	Filled (closed)
Unaffected	Open	Open



## قواعد مندل

Gregor Mendel discovered principles of genetics in experiments with the garden pea

In Mendel experiment, the heritable factors is now known as genes

**F<sub>1</sub>**

- ✓ dominant appear
- ✓ recessive disappear

**F<sub>2</sub>**

- ✓ dominant appear
- ✓ recessive appear

P	TT (homo)(Purple)	tt (homo)(white)
F <sub>1</sub> الجيل الأول	Tt (Purple) (Dominant only)	
F <sub>2</sub> الجيل الثاني	T	t
	t	t
	TT	Tt
	Tt	tt (Recessive (white))

- ✓ 50% heterozygous (dominant) (purple)
- ✓ 50% homozygous (1 dominant-purple-TT) (1 recessive-white-tt)
- ✓ 1 recessive-white because both parents are heterozygous purple.
- ✓ Phenotypic ratio (3 purple:1 white) & genotypic ratio (1TT:2Tt:1tt)

Phenotypic is appearance & genotypic is genetic constitution

## Exception (Variations) to Mendels Laws

1) **Co-dominance** :- السيادة المشتركة

- ✓ Heterozygote expresses phenotypes of both homozygotes

2) **Incomplete dominance** :- السيادة النسيطة

- ✓ is referred to as Heterozygote has intermediate phenotype
- ✓ Neither allele is dominant over the other

3) **Multiple alleles** :- تعدد الأليلات

- ✓ is referred to as three or more alleles in a population for same locus.

4) **Polygenes** :- تعدد الجينات

- ✓ is referred to as Multiple independent pairs of genes may have similar and additive effects on the phenotype

5) **Pleiotropy** :- (تعدد الصفات)

- ✓ is referred to as the phenomenon of one gene mutation being responsible for or affecting more than one phenotypic characteristic



١٤٣٩ .. النصف الدراسي الاول .. دفعة ١٨ .. الدوري النهائي

# د. جمال الشعراوي

تحت إشراف

٧ ورقات

جزء ٢

## Chapter (12):- Genetics



Biology



Biology

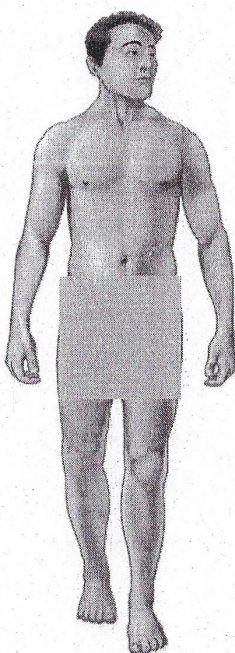


Biology



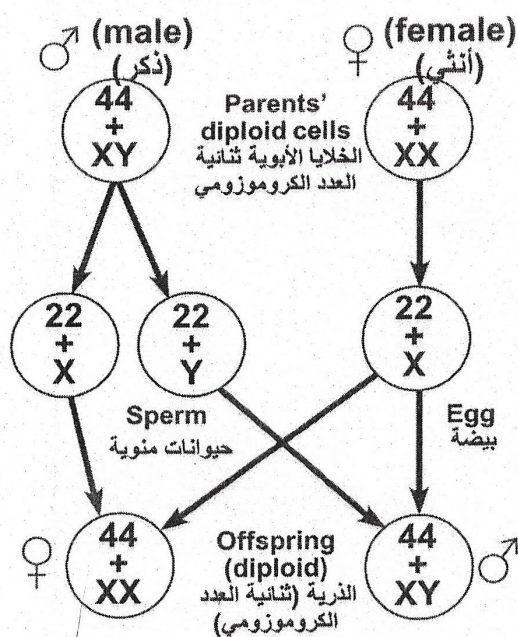
Biology

Biology



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X-Y system  
نظام X-Y



جدة

كيمياء حيوية للكليات الطبية

أحياء



0556806264





1) Haploid cells

- ☐ Have three homologous sets of chromosomes ( $3n$ )
- ☒ Are sex cells
- ☐ Have two homologous sets of chromosomes ( $2n$ )
- ☐ Are mainly somatic cells

✓ have one set of chromosomes ( $1n$ )

2) Diploid cells

- ☐ are sex cells
- ☒ have two homologous sets of chromosomes ( $2n$ )
- ☐ have one set of chromosomes ( $1n$ )
- ☐ have three homologous sets of chromosomes ( $3n$ )

✓ Are mainly somatic cells

*auf*

or Fruit fly

3) Which of the following is true in mammals sex determination system?

- ☐ XY = female AND ZW = male
- ☒ XY = male
- ☐ XY = female
- ☐ ZW = male

✓ XX = female

4) Which of the following is true in grasshoppers sex determination system?

- ☐ XX = male
- ☒ XX = female
- ☐ ZW = male
- ☐ All other answers are correct

✓ XO = male

5) Which of the following is true in birds sex determination system?

- ☒ ZW = female
- ☐ XY = female
- ☐ ZW = male
- ☐ All other answers are correct

✓ ZZ = male

6) Which of the following is true in bees sex determination system?

- ☐ haploid = female
- ☐ Diploid = male AND haploid = female
- ☒ haploid = male
- ☐ Diploid = male

✓ Diploid = female



7) Copy of a gene is called \_\_\_\_\_

- ☐ Sister chromosomes AND Gametes  
☐ Gametes  
☐ Sister chromosomes  
☒ alleles

8) Which of the following is Homozygous?

- ☐ ab  
☐ Aa AND ab  
☒ Two identical alleles  
☐ Aa

☒ AA  
☒ aa

9) Which of the following is Heterozygous?

- ☒ Aa  
☐ AA AND aa  
☐ aa  
☐ AA

☒ Two different alleles  
☒ ab

10) Alleles that is expressed in the heterozygous \_\_\_\_\_

- ☒ Dominant allele  
☐ Recessive allele

11) Alleles that is not expressed in the heterozygous \_\_\_\_\_

- ☐ Dominant allele  
☒ Recessive allele

12) Open circle in human pedigree is symbol for \_\_\_\_\_

- ☐ affected female  
☐ normal male  
☒ normal female  
☐ affected male

13) Filled circle in human pedigree is symbol for \_\_\_\_\_

- ☒ affected female  
☐ normal male  
☐ normal female  
☐ affected male

14) Open square in human pedigree is symbol for \_\_\_\_\_

- ☐ affected female  
☒ normal male  
☐ normal female  
☐ affected male

15) Filled square in human pedigree is symbol for \_\_\_\_\_

- ☐ affected female  
☐ normal male  
☐ normal female  
☒ affected male



16) Normal female in genetic pedigree is represented by \_\_\_\_\_

- ☐ Filled square  
☐ there is no answer  
☒ Filled circle  
☒ Open circle

17) Affected female in genetic pedigree is represented by \_\_\_\_\_

- ☐ Filled square  
☐ Open circle  
☒ Filled circle  
☐ All other answers are correct

18) Normal male in genetic pedigree is represented by \_\_\_\_\_

- ☐ Filled square  
☒ Open square  
☐ Filled circle  
☐ there is no answer

19) Affected male in genetic pedigree is represented by \_\_\_\_\_

- ☐ Open square  
☐ Open circle  
☒ Filled square  
☐ Open circle AND Open square

20) In Mendel experiment, the heritable factors is now known as \_\_\_\_\_

- ☐ chromatids  
☐ there is no answer  
☒ chromomers  
☒ genes

21) Which of the following statements are true \_\_\_\_\_

- ☐ Recessive allele appears in the F<sub>1</sub> generation  
☐ Recessive and dominant allele disappear in the F<sub>2</sub> generation  
☐ All other answers are correct  
☒ dominant allele appears in the F<sub>2</sub> generation

✓ in the F<sub>1</sub> generation

- ☐ dominant allele appears  
☐ Recessive allele disappear

✓ in the F<sub>2</sub> generation

- ☐ dominant and Recessive allele appear



22) Which of the following is an exception to Mendels Laws?

- ☒ dominance
- ☒ Co-dominance
- ☒ recessiveness
- ☒ Segregation

- ✓ Incomplete dominance
- ✓ multiple alleles
- ✓ polygens
- ✓ poliotropy

23) \_\_\_\_\_ is referred to as Heterozygote expresses phenotypes of both homozygotes.

- ☐ Pleiotropy
- ☒ Co-dominance
- ☐ there is no answer
- ☐ Incomplete dominance
- ☐ Multiple alleles

24) \_\_\_\_\_ is referred to as Heterozygote has intermediate phenotype.

- ☐ there is no answer
- ☐ Pleiotropy
- ☐ Codominance
- ☒ Incomplete dominance

25) \_\_\_\_\_ is referred to as three or more alleles in a population for same locus.

- ☐ Incomplete dominance
- ☐ Polygenes
- ☒ Multiple alleles
- ☐ Pleiotropy

26) \_\_\_\_\_ is referred to as Multiple independent pairs of genes may have similar and additive effects on the phenotype

- ☐ Incomplete dominance
- ☒ Polygenes
- ☐ Multiple alleles
- ☐ Pleiotropy

27) \_\_\_\_\_ is referred to as the phenomenon of one gene mutation being responsible for or affecting more than one phenotypic characteristic.

- ☐ Incomplete dominance
- ☐ Polygenes
- ☐ Multiple alleles
- ☒ Pleiotropy



28) Codominance is referred to \_\_\_\_\_

☒ Heterozygote expresses phenotypes of both homozygotes

☐ there is no answer

☐ Heterozygote has intermediate phenotype

☐ Multiple independent pairs of genes may have similar and additive effects on phenotype

29) Incomplete dominance is referred to \_\_\_\_\_

☐ Heterozygote expresses phenotypes of both homozygotes

☐ there is no answer

☒ Heterozygote has intermediate phenotype

☐ Multiple independent pairs of genes may have similar and additive effects on the phenotype.

30) Polygenes is referred to \_\_\_\_\_

☐ Heterozygote expresses phenotypes of both homozygotes

☒ Multiple independent pairs of genes may have similar and additive effects on the phenotype.

☐ Three or more alleles in a population for the same locus.

☐ The phenomenon of one gene mutation being responsible for or affecting more than one phenotypic characteristic (= Single traits).

31) Multiple alleles is referred to \_\_\_\_\_

☒ Three or more alleles in a population for the same locus.

☐ The phenomenon of one gene mutation being responsible for or affecting more than one phenotypic characteristic.

☐ there is no answer

☐ Multiple independent pairs of genes may have similar and additive effects on the phenotype.



32) Pleiotropy is referred to \_\_\_\_\_

☒ All other answers are correct

☐ Multiple independent pairs of genes may have similar and additive effects on the phenotype.

☐ Three or more alleles in a population for the same locus.

☒ The phenomenon of one gene mutation being responsible for or affecting more than one phenotypic characteristic.

33) In mammals sex is determined by \_\_\_\_\_

☒ X-Y system

B) Z-W system

C) Number of chromosome

D) X-O system

34) In grasshopper and roaches sex is determined by \_\_\_\_\_

A) X-Y system

B) Z-W system

C) Number of chromosome

☒ X-O system

35) In birds and butterflies is determined by \_\_\_\_\_

A) X-Y system

☒ Z-W system

C) Number of chromosome

D) X-O system

36) In ants and bees sex is determined by \_\_\_\_\_

A) X-Y system

B) Z-W system

☒ Number of chromosome

D) X-O system

37) For each character, an organism inherits two \_\_\_\_\_, one from each parent.

☒ Alleles

B) genes

C) traits

D) DNA

38) A \_\_\_\_\_ gene may mask the expression of a \_\_\_\_\_ gene.

A) Recessive - dominant

B) sex - autosomal

☒ Dominant - recessive

D) sex - recessive



39) \_\_\_ carry two different alleles of a locus whereas, \_\_\_ carry identical alleles

A) Diplozygous--- heterozygous

✓ ☒ heterozygous --- homozygous

C) homologous---- homozygous

D) homozygous ---heterozygous

40) The Phenotypic ratio of F<sub>2</sub> generation in monohybrid cross is \_\_\_\_\_

✓ ☒ 3:1

B) 4:1

C) 1:2:1

D) none of the above

41) The genotypic ratio of F<sub>2</sub> generation in monohybrid cross is \_\_\_\_\_

A) 3:1

✓ ☒ 1:2:1

C) 2:3

D) all of the above

42) In mendels F<sub>2</sub> generation, one out of four plants had one white flowers because \_\_\_\_\_

A) The trait is sex -linked

✓ ☒ both patterns where heterozygous purple

C) One parent was homozygous recessive

D) both patterns where heterozygous white

الزخرفة



In a fish, gas exchange is enhanced by\_\_\_\_\_

- ☐ countercurrent flow of water and blood
- ☐ use small lungs
- ☐ alternate inhalation and exhalation
- ☐ tracheal systems



Which of the following is an enzyme that breaks down starch?

- ☐ lipase
- ☐ amylase
- ☐ pepsin
- ☐ nuclease



3

Which of the following statements regarding membrane proteins function is False?

- ☐ act as signal transduction
- ☐ transport
- ☐ carry genetic information
- ☐ act as enzymes



4



9



14



19



متصفح الأسئلة

التالي &gt;



The pharynx and stomach are connected through the \_\_\_\_\_

- ☐ small intestine
- ☐ liver
- ☐ esophagus
- ☐ trachea



The function of mucus and cilia in the respiratory passages is:

- ☐ not damaged by smoking
- ☐ protecting the stomach
- ☐ forming blood clot
- ☐ protecting the lung



3

The light reactions of photosynthesis generate \_\_\_\_\_

- ☐  $\text{CO}_2$
- ☐ starch
- ☐ NADPH and ATP
- ☐ glucose



11 of 33

A plant cell in isotonic solution will be \_\_\_\_\_

- ☐ lysed
- ☐ flaccid
- ☐ turgid
- ☐ shriveled



\_\_\_\_\_ is a common passage for food and air.

- ☐ Nasal cavity
- ☐ Mouth
- ☐ Trachea
- ☐ Pharynx



3

In mammals, air is inhaled through the nostrils into the \_\_\_\_\_

- ☐ nasal cavity
- ☐ esophagus cavity
- ☐ oral cavity
- ☐ abdominal cavity



\_\_\_\_\_ occurs when too much water is reclaimed from the intestine.

- ☐ Bile
- ☐ Feces
- ☐ Constipation
- ☐ Diarrhea



Oxygen crosses a plasma membrane by-----

- ☐ passive transport
- ☐ active transport
- ☐ exocytosis
- ☐ osmosis



Photosynthesis uses redox reactions to \_\_\_\_\_

- ☐ produce sugar
- ☐ produce ATP
- ☐ transfer the genetic factor
- ☐ provide carbon dioxide



In humans respiratory system, the small sacs of the lungs involved in the gas exchange are called \_\_\_\_\_.

- ☐ alveoli
- ☐ nasal cavity
- ☐ tracheal tubes
- ☐ skin

متصفح الأسئلة

19	18	17	16	15
24	23	22	21	20
29	28	27	26	25



متصفح الأسئلة

السؤال التالي <

السؤال السابق



Movement of particles against its concentration gradient is called \_\_\_\_\_

- ☐ simple diffusion
- ☐ passive transport
- ☐ active transport
- ☐ osmosis



\_\_\_\_\_ is the breaking of glucose into two molecules of pyruvate.

- ☐ Citric acid cycle
- ☐ Glycolysis
- ☐ Oxidative phosphorylation
- ☐ Oxidation



\_\_\_\_\_ is the part of the digestive system where no digestion takes place.

- ☐ esophagus
- ☐ mouth
- ☐ intestine
- ☐ stomach



In cellular respiration oxidative phosphorylation takes place in

- ☐ the inner mitochondrion membrane
- ☐ nuclear membrane
- ☐ golgi apparatus membrane
- ☐ cell membrane



Which of the following are produced during the light reactions of photosynthesis....

- ☐ ATP, NADPH,  $O_2$
- ☐ ATP, NADPH,  $CO_2$
- ☐ Glucose, ADP,  $NADP^+$ ,  $CO_2$
- ☐ Glucose, ADP,  $NADP^+$



\_\_\_\_\_ is the breaking of glucose into two molecules of pyruvate.

- ☐ Citric acid cycle
- ☐ Glycolysis
- ☐ Oxidative phosphorylation
- ☐ Oxidation



The correct order of the cellular respiration stages is \_\_\_\_\_

- ☐ citric acid cycle --> oxidative phosphorylation --> glycolysis
- ☐ oxidative phosphorylation --> citric acid cycle --> glycolysis
- ☐ glycolysis --> oxidative phosphorylation --> citric acid cycle
- ☐ glycolysis --> citric acid cycle --> oxidative phosphorylation



\_\_\_\_\_ are animals which eat plant.

- ☐ Carnivores
- ☐ Omnivores
- ☐ Bluky feeders
- ☐ Herbivores



In humans respiratory system, the small sacs of the lungs involved in the gas exchange are called \_\_\_\_\_.

- ☐ alveoli
- ☐ nasal cavity
- ☐ tracheal tubes
- ☐ skin

متصفح الأسئلة

19	18	17	16	15
24	23	22	21	20
29	28	27	26	25



متصفح الأسئلة

السؤال التالي <

السؤال السابق



In a fish, gas exchange is enhanced by\_\_\_\_\_

- ☐ countercurrent flow of water and blood
- ☐ use small lungs
- ☐ alternate inhalation and exhalation
- ☐ tracheal systems



3

Which of the following statements regarding membrane proteins function is False?

- ☐ act as signal transduction
- ☐ transport
- ☐ carry genetic information
- ☐ act as enzymes



4

9

14

19



متصفح الأسئلة

التالي &gt;



Which of the following is an enzyme that breaks down starch?

- ☐ lipase
- ☐ amylase
- ☐ pepsin
- ☐ nuclease



The pharynx and stomach are connected through the \_\_\_\_\_

- ☐ small intestine
- ☐ liver
- ☐ esophagus
- ☐ trachea



The function of mucus and cilia in the respiratory passages is:

- ☐ not damaged by smoking
- ☐ protecting the stomach
- ☐ forming blood clot
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Oxygen crosses a plasma membrane by-----

- ☐ passive transport
- ☐ active transport
- ☐ exocytosis
- ☐ osmosis



3

The light reactions of photosynthesis generate \_\_\_\_\_

- ☐  $\text{CO}_2$
- ☐ starch
- ☐ NADPH and ATP
- ☐ glucose



11 of 33

A plant cell in isotonic solution will be \_\_\_\_\_

- ☐ lysed
- ☐ flaccid
- ☐ turgid
- ☐ shriveled



Photosynthesis uses redox reactions to \_\_\_\_\_

- ☐ produce sugar
- ☐ produce ATP
- ☐ transfer the genetic factor
- ☐ provide carbon dioxide



\_\_\_\_\_ is a common passage for food and air.

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- ☐ Trachea
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Movement of particles against its concentration gradient is called \_\_\_\_\_

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متصفح الأسئلة

19	18	17	16	15
24	23	22	21	20
29	28	27	26	25



متصفح الأسئلة

السؤال التالي <

السؤال السابق



\_\_\_\_\_ is the breaking of glucose into two molecules of pyruvate.

- ☐ Citric acid cycle
- ☐ Glycolysis
- ☐ Oxidative phosphorylation
- ☐ Oxidation



In cellular respiration oxidative phosphorylation takes place in

- ☐ the inner mitochondrion membrane
- ☐ nuclear membrane
- ☐ golgi apparatus membrane
- ☐ cell membrane



Which of the following are produced during the light reactions of photosynthesis....

- ☐ ATP, NADPH,  $O_2$
- ☐ ATP, NADPH,  $CO_2$
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1 of 33

Which of the following statements regarding active transport is False?

- ☐ can move solutions against its concentration gradient
- ☐ dose not need energy
- ☐ particles move from low concentration to high concentration area
- ☐ uses ATP as an energy source



السؤال

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2 of 33

The digestion of starch begins in the \_\_\_\_\_.

- ☐ stomach
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Bio 110 C Second

\_\_\_\_\_ are able to make their own food without using organic molecules derived from any other living thing.

- ☐ Consumers
- ☐ Animals
- ☐ Decomposers
- ☐ Autotrophs

الأسئلة

4	3	2	1
9	8	7	6
14	13	12	11
19	18	17	16

متصفح الأسئلة

السؤال التالي <

السؤال السابق >

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6 of 33

In cellular respiration electrons are shuttled through the electron transport chain in \_\_\_\_\_.

- ☐ glycolysis
- ☐ citric acid cycle
- ☐ oxidative phosphorylation
- ☐ reduction



متصفح الأسئلة





7 of 33

The light reactions of photosynthesis generate \_\_\_\_\_.

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متصفح الأسئلة

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5 of 33

What is the part indicated by the black arrow in the human digestive system?



- ☐ large intestine
- ☐ small intestine
- ☐ stomach
- ☐ mouth



\_\_\_\_\_ is the ability of organisms to maintain water balance within the cells.

- ☐ Organization
- ☐ Osmoregulation
- ☐ Thermoregulation
- ☐ Adaptation



9 of 33

Which of the following is an enzyme that breaks down fats?

- ☐ amylase
- ☐ nuclease
- ☐ pepsin
- ☐ lipase

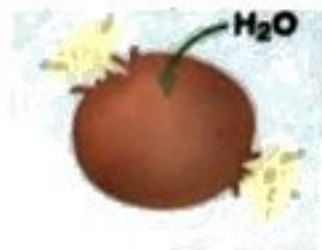


The product of Glycolysis is \_\_\_\_\_.

- ☐ protein
- ☐ glucose
- ☐ lipid
- ☐ 2 pyruvates + 2 NADH + 2 ATP



The picture shows the animal cell in hypotonic solution, cell became \_\_\_\_\_



- ☐ normal
- ☐ lysed
- ☐ shriveled
- ☐ flaccid



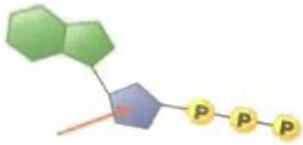
Most of carbon dioxide in the blood is transported as bicarbonate ions in the \_\_\_\_\_

- ☐ white blood cells
- ☐ plasma
- ☐ platelets
- ☐ red blood cells



12 of 33

What is the part indicated by the red arrow in adenosine triphosphate (ATP)?



- ☐ glucose
- ☐ ribose
- ☐ adenine
- ☐ phosphate group



13 of 33

steps of food processing are.....

- ☐ digestion , ingestion ,absorption and elimination
- ☐ elimination , absorption digestion and ingestion
- ☐ ingestion ,digestion ,absorption and elimination
- ☐ absorption ,ingestion , digestion and elimination





1 of 33

Which of the following statements regarding active transport is False?

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- ☐ particles move from low concentration to high concentration area
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السؤال

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متصفح الأسئلة

السؤال التالي <

السؤال السابق >

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2 of 33

The digestion of starch begins in the \_\_\_\_\_.

- ☐ stomach
- ☐ pharynx
- ☐ esophagus
- ☒ oral cavity





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7 of 33

The light reactions of photosynthesis generate \_\_\_\_\_.

- ☐  $\text{CO}_2$
- ☐ glucose
- ☐ starch

☒ NADPH and ATP

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متصفح الأسئلة

< >





8 of 33

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متصفح الأسئلة

الي <



9 of 33

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☐ pepsin

☒ lipase



السؤال الأول

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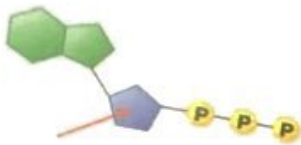
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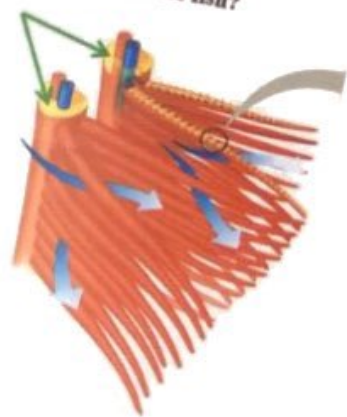
السؤال

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What is the part indicated by the two green arrows in the gills of the fish?



lung

2 of 33

The digestion of starch begins in the \_\_\_\_\_.

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- ☐ pharynx
- ☐ esophagus
- ☒ oral cavity





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7 of 33

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متصفح الأسئلة

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8 of 33

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متصفح الأسئلة

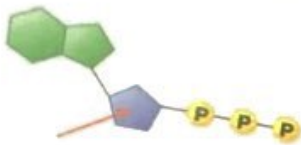
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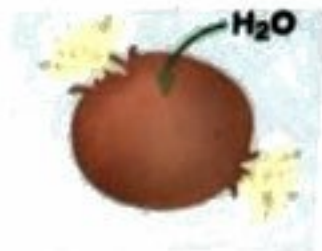
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9 of 33

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السؤال الأول

< >



13 of 33

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- ☐ elimination , absorption digestion and ingestion
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In a fish, gas exchange is enhanced by\_\_\_\_\_

- ☐ countercurrent flow of water and blood
- ☐ use small lungs
- ☐ alternate inhalation and exhalation
- ☐ tracheal systems



Which of the following is an enzyme that breaks down starch?

- ☐ lipase
- ☐ amylase
- ☐ pepsin
- ☐ nuclease

3

Which of the following statements regarding membrane proteins function is False?

- ☐ act as signal transduction
- ☐ transport
- ☐ carry genetic information
- ☐ act as enzymes



4



9



14



19



متصفح الأسئلة

التالي &gt;



The pharynx and stomach are connected through the \_\_\_\_\_

- ☐ small intestine
- ☐ liver
- ☐ esophagus
- ☐ trachea

The function of mucus and cilia in the respiratory passages is:

- ☐ not damaged by smoking
- ☐ protecting the stomach
- ☐ forming blood clot
- ☐ protecting the lung



3

The light reactions of photosynthesis generate \_\_\_\_\_

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11 of 33

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- ☐ Mouth
- ☐ Trachea
- ☐ Pharynx

3

In mammals, air is inhaled through the nostrils into the \_\_\_\_\_

- ☐ nasal cavity
- ☐ esophagus cavity
- ☐ oral cavity
- ☐ abdominal cavity



\_\_\_\_\_ occurs when too much water is reclaimed from the intestine.

- ☐ Bile
- ☐ Feces
- ☐ Constipation
- ☐ Diarrhea

Oxygen crosses a plasma membrane by-----

- ☐ passive transport
- ☐ active transport
- ☐ exocytosis
- ☐ osmosis



Photosynthesis uses redox reactions to \_\_\_\_\_

- ☐ produce sugar
- ☐ produce ATP
- ☐ transfer the genetic factor
- ☐ provide carbon dioxide

In humans respiratory system, the small sacs of the lungs involved in the gas exchange are called \_\_\_\_\_.

- ☐ alveoli
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متصفح الأسئلة

19	18	17	16	15
24	23	22	21	20
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متصفح الأسئلة

السؤال التالي <

السؤال السابق



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\_\_\_\_\_ is the breaking of glucose into two molecules of pyruvate.

- ☐ Citric acid cycle
- ☐ Glycolysis
- ☐ Oxidative phosphorylation
- ☐ Oxidation



\_\_\_\_\_ is the part of the digestive system where no digestion takes place.

- ☐ esophagus
- ☐ mouth
- ☐ intestine
- ☐ stomach

In cellular respiration oxidative phosphorylation takes place in

- ☐ the inner mitochondrion membrane
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Which of the following are produced during the light reactions of photosynthesis....

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The correct order of the cellular respiration stages is \_\_\_\_\_

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متصفح الأسئلة

التالي &gt;

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متصفح الأسئلة

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السؤال

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2 of 33

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متصفح الأسئلة

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متصفح الأسئلة





7 of 33

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متصفح الأسئلة

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- ☐ small intestine
- ☐ stomach
- ☐ mouth



\_\_\_\_\_ is the ability of organisms to maintain water balance within the cells.

- ☐ Organization
- ☐ Osmoregulation
- ☐ Thermoregulation
- ☐ Adaptation

9 of 33

Which of the following is an enzyme that breaks down fats?

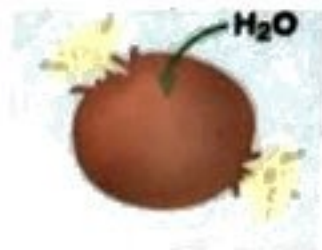
- ☐ amylase
- ☐ nuclease
- ☐ pepsin
- ☐ lipase



The product of Glycolysis is \_\_\_\_\_.

- ☐ protein
- ☐ glucose
- ☐ lipid
- ☐ 2 pyruvates + 2 NADH + 2 ATP

The picture shows the animal cell in hypotonic solution, cell became \_\_\_\_\_



- ☐ normal
- ☐ lysed
- ☐ shriveled
- ☐ flaccid



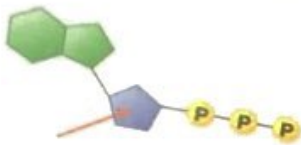
Most of carbon dioxide in the blood is transported as bicarbonate ions in the \_\_\_\_\_

- ☐ white blood cells
- ☐ plasma
- ☐ platelets
- ☐ red blood cells



12 of 33

What is the part indicated by the red arrow in adenosine triphosphate (ATP)?



- ☐ glucose
- ☐ ribose
- ☐ adenine
- ☐ phosphate group



13 of 33

steps of food processing are.....

- ☐ digestion , ingestion ,absorption and elimination
- ☐ elimination , absorption digestion and ingestion
- ☐ ingestion ,digestion ,absorption and elimination
- ☐ absorption ,ingestion , digestion and elimination



1 of 33

Which of the following statements regarding active transport is False?

- ☐ can move solutions against its concentration gradient
- ☒ do not need energy
- ☐ particles move from low concentration to high concentration area
- ☐ uses ATP as an energy source



السؤال

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5 of 33

What is the part indicated by the black arrow in the human digestive system?



☐ large intestine

☐ small intestine

☒ stomach

☐ esophagus

Bio 110 C Second

\_\_\_\_\_ are able to make their own food without using organic molecules derived from any other living thing.

- ☐ Consumers
- ☐ Animals
- ☐ Decomposers
- ☒ Autotrophs

الأسئلة			
4	3	2	1
9	8	7	6
14	13	12	11
19	18	17	16

متصفح الأسئلة

السؤال التالي <

السؤال

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2 of 33

The digestion of starch begins in the \_\_\_\_\_.

- ☐ stomach
- ☐ pharynx
- ☐ esophagus
- ☒ oral cavity



In cellular respiration electrons are shuttled through the electron transport chain in \_\_\_\_\_.

- ☐ glycolysis
- ☐ citric acid cycle
- ☒ oxidative phosphorylation
- ☐ reduction





7 of 33

The light reactions of photosynthesis generate \_\_\_\_\_.

- ☐  $\text{CO}_2$
- ☐ glucose
- ☐ starch

☒ NADPH and ATP

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متصفح الأسئلة

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8 of 33

The product of Glycolysis is \_\_\_\_\_.

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☐ glucose

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متصفح الأسئلة

إلى <





9 of 33

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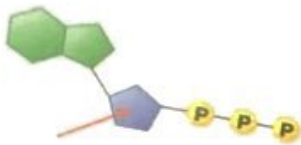
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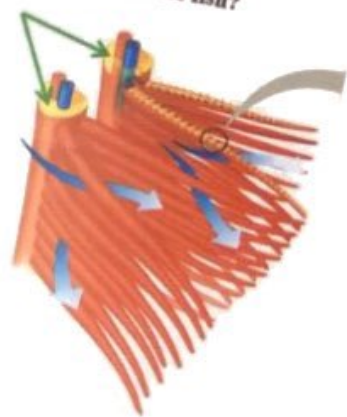
السؤال

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What is the part indicated by the two green arrows in the gills of the fish?



lung

2 of 33

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- ☐ pharynx
- ☐ esophagus
- ☒ oral cavity





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- ☒ Osmoregulation
- ☐ Thermoregulation
- ☐ Adaptation



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متصفح الأسئلة

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متصفح الأسئلة

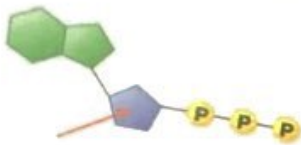
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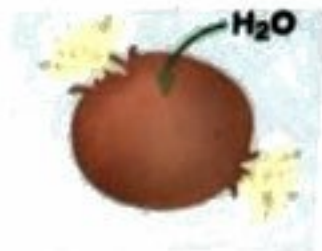
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السؤال الأول

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- ☐ absorption ,ingestion , digestion and elimination



9 December 2017

9 December 2017

١٤٣٩ .. النصف الدراسي الاول .. دفعة ١٨ .. الدوري النهائي

# د . جمال الشعراوي

تست / خرد

جزء ١

## Chapter (9):- Gas exchange



Biology



Biology

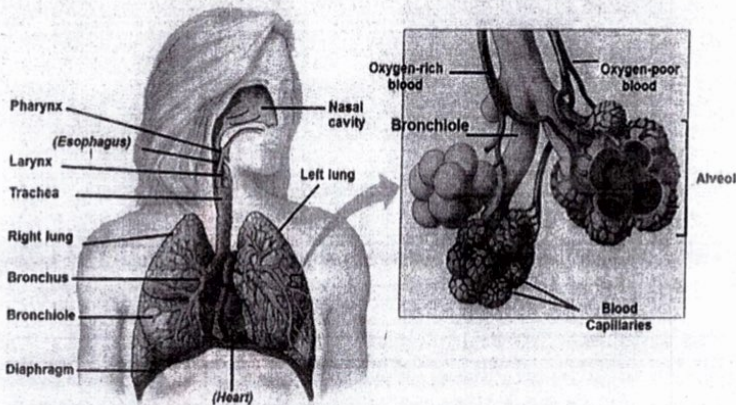


Biology



Biology

Biology



The anatomy of the human respiratory system (left)  
and details of the structure of alveoli (right)

جدة

كيمياء حيوية للكليات الطبية

احياء



0556806264





1. In the human respiratory system, air passes from nostrils to \_\_\_\_\_

☐ Alveoli

☐ larynx

☒ Nasal cavity

☐ pharynx

2. In the human respiratory system, air passes from nasal cavity to \_\_\_\_\_

☐ Alveoli

☐ larynx

☐ bronchioles

☒ pharynx

3. In the human respiratory system, air passes from pharynx to the \_\_\_\_\_

☐ bronchioles

☐ nasal cavity

☒ larynx

☐ trachea

4. In the human respiratory system, air passes from larynx to the \_\_\_\_\_

☐ bronchioles

☐ nasal cavity

☐ larynx

☒ trachea

5. In the human respiratory system, air passes from trachea to the \_\_\_\_\_

☐ bronchioles

☐ nasal cavity

☐ larynx

☒ Bronchi

6. In the human respiratory system, air passes from bronchi to the \_\_\_\_\_

☒ bronchioles

☐ nasal cavity

☐ larynx

☐ Bronchi

7. In the human respiratory system, air passes from bronchioles to \_\_\_\_\_

☐ trachea

☐ nasal cavity

☒ alveoli

☐ Bronchi

8. The actual site of gas exchange in human is \_\_\_\_\_

☐ larynx

☒ alveoli

☐ vocal cord

☐ nasal cavity



9. Alveoli are \_\_\_\_\_

- ☐ having small surface area
- ☐ the site where O<sub>2</sub> diffuses out of the blood
- ✓ ☒ the site where CO<sub>2</sub> diffuses out of the blood
- ☐ the site where CO<sub>2</sub> diffuses into the blood



10. In the lungs, blood \_\_\_\_\_ (الدم)

- ✗ ☐ drops off urine
- ☐ picks up CO<sub>2</sub>
- ☐ drops off O<sub>2</sub>
- ✓ ☒ drops off CO<sub>2</sub>

✓ picks up O<sub>2</sub>

11. In the body tissues, blood \_\_\_\_\_

- ☐ drops off CO<sub>2</sub>
- ✗ ☐ drops off waste products
- ✓ ☒ picks up CO<sub>2</sub>
- ☐ picks up O<sub>2</sub>

✓ Drops off O<sub>2</sub>

12. During the transport of gases between alveoli and blood \_\_\_\_\_

- ✗ ☐ O<sub>2</sub> moves from the blood into the tissues
- ✓ ☒ CO<sub>2</sub> moves from the blood into the alveoli of the lungs
- ✗ ☐ the tissues have more CO<sub>2</sub> and less O<sub>2</sub> than in the blood
- ✗ ☐ CO<sub>2</sub> moves from the tissues into the blood



13. During the transport of gases between blood and tissues \_\_\_\_\_

- ✗ ☐ Gases in the alveoli have more O<sub>2</sub> and less CO<sub>2</sub> than gases the blood
- ✓ ☒ CO<sub>2</sub> moves from the tissues into the blood
- ✗ ☐ CO<sub>2</sub> moves from the blood into the alveoli of the lungs
- ✗ ☐ O<sub>2</sub> moves from the alveoli of the lungs into the blood





14. The iron-containing pigment (hemoglobin)

- ☐ is found only in birds
- ☐ is found in Arthropods
- ☒ is found in almost all vertebrates
- ☐ is found in Mollusca



15. The copper-containing pigment (hemocyanin)

- ☒ is found in Mollusca
- ☐ is found in many mammals ✗
- ☐ is found in almost all vertebrates ✗
- ☐ is found only in birds ✗

✓ Is found in Arthropods (insects)

16. Inhalation occurs when \_\_\_\_\_.

- ☒ the volume of the chest cavity increases, lowering the air pressure around lungs.
- ☐ the diaphragm moves upward
- ☐ the rib cage contracts
- ☐ air is forced out of the respiratory tract



17. Exhalation occurs when \_\_\_\_\_.

- ☐ air rushes into lungs to equalize the pressure difference
- ☐ the volume of the chest cavity increases, lowering the air pressure around lungs.
- ☒ the diaphragm moves upward
- ☐ the diaphragm moves downward



18. The major site of gas exchange in \_\_\_\_\_ are gills.

- ☐ tetrapods that live on land
- ☐ mammals
- ☐ jellies
- ☒ fish

19. the major site of gas exchange in \_\_\_\_\_ are tracheal systems

- ☐ mammals
- ☐ fish
- ☒ arthropods
- ☐ jellies

✓ insects



20. the major site of gas exchange in \_\_\_\_\_ are lungs

- ☐ sponges
- ☒ birds
- ☐ arthropods
- ☐ fish

- ✓ Tetrapods that live on land
- ✓ Mammals
- ✓ Reptiles

21. The skin is the major site of gas exchange in \_\_\_\_\_

- ☒ flatworms
- ☐ mammals
- ☐ arthropods
- ☐ tetrapods that live on land

- ✓ Earthworm
- ✓ Sponge
- ✓ jellies

22. Amphibians use \_\_\_\_\_ as the respiratory surface

- ☒ Small lungs
- ☐ more complex lungs
- ☐ simple lungs
- ☐ lungs

- ✓ their body surfaces

23. Nonbird reptiles use \_\_\_\_\_ as the respiratory surface

- ☒ Simple lungs
- ☐ more complex lungs
- ☐ their body surfaces
- ☐ small lungs

24. Birds and mammals use \_\_\_\_\_ as the respiratory surface

- ☐ their body surfaces
- ☒ more complex lungs
- ☐ simple lungs
- ☐ small lungs

25. Gills \_\_\_\_\_

- ☐ release oxygen
- ☒ release carbon dioxide
- ☐ decrease the surface to volume ratio
- ☐ absorb carbon dioxide





26. • Smoking \_\_\_\_\_ المتخين X X

- ☒ decreases the harmful types of cholesterol  
☒ reduces blood pressure  
☒ decreases the risk of heart attacks and strokes  
☒ raises blood pressure



27. \_\_\_\_\_ are a grape-like cluster of air sacs where gas exchange occurs.

- ☒ A) Alveoli ←  
☐ B) Bronchi  
☐ C) Trachea  
☐ D) bronchioles

28. Cellular respiration requires a continuous supply of O<sub>2</sub> and \_\_\_\_\_ of CO<sub>2</sub>.

- ☐ A) charging  
☐ B) activation  
☒ C) disposal التخلص  
☐ D) inhibition

29. The O<sub>2</sub> that diffuses into blood attaches to \_\_\_\_\_ in red blood cells.

- ☐ A) Plasma  
☐ B) white blood cells  
☒ C) Hemoglobin  
☐ D) platelets

30. Most of carbon dioxide in blood is transported as bicarbonate ions in \_\_\_\_\_

- ☒ A) Plasma  
☐ B) Red blood cells  
☐ C) White blood cells  
☐ D) Platelets

31. Most of carbon dioxide (CO<sub>2</sub>) in blood is transported as \_\_\_\_\_ ions in plasma

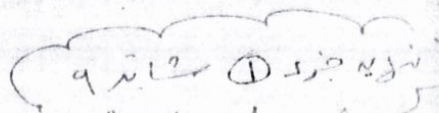
- ☒ A) Bicarbonates ions  
☐ B) Carbonyl  
☐ C) Carbon monoxide  
☐ D) Carbonate

32. The breathing control centers sense and respond to \_\_\_\_\_ levels in blood

- ☐ A) Oxygen  
☒ B) CO<sub>2</sub>  
☐ C) water  
☐ D) hormones

33. The breathing control centers are found in the \_\_\_\_\_

- ☐ A) Head and aorta  
☐ B) Larynx and pharynx  
☒ C) Pons and medulla oblongata  
☐ D) Esophagus and trachea





## 1. The heart \_\_\_\_\_ (القلب)

- ☐ Carries food through body
- ☒ Pumps blood through body
- ☐ Carries oxygen through body
- ☐ Is network of hollow tubes

## 2. The blood vessels \_\_\_\_\_ (الأوعية الدموية)

- ☐ Pump blood through body
- ☐ Carry O<sub>2</sub> to the lungs
- ☐ Carry waste to body cells
- ☒ Transport blood throughout the entire body

✓ are networks of hollow tubes

## 3. The blood \_\_\_\_\_ (الدم)

- ☒ carries food through body
- ☐ pumps blood through body
- ☐ transport blood throughout the entire body
- ☐ is network of hollow tubes

✓ carry waste to body cells  
✓ carries oxygen through body

## 4. Arteries \_\_\_\_\_ (الشرايين)

- ☐ are narrow, blood cells flows in a single file
- ☐ have one-way valves that restrict backward flow
- ☐ increases surface area for gas and fluid exchange
- ☒ have thicker walls

✓ are under more pressure

✓ carry blood from heart to body organs & tissue

## 5. Veins \_\_\_\_\_ (الوريد)

- ☐ are narrow, blood cells flows in a single file
- ☐ composed of a single layer of epithelial cells
- ☒ have one-way valves that restrict backward flow
- ☐ have thicker walls





6. Capillaries \_\_\_\_\_ (الشعيرات الدموية)



- ☐ force blood back to right heart atrium
- ☐ have thicker walls
- ☒ increases surface area for gas and fluid exchange
- ☐ are under more pressure

7. In the four-chambered hearts \_\_\_\_\_ (القلب الرباعي الفرف)



- ☒ blood stays confined to vessels
- ☒ the left side of the heart pumps blood from lungs to body
- ☒ heart pumps blood through open-ended vessels
- ☒ there is no answer

8. In the four-chambered hearts \_\_\_\_\_

- ☒ heart pumps blood through open-ended vessels
- ☒ there is no answer
- ☒ there are two atria and two ventricles
- ☒ there are one atrium and one ventricle

9. The heart rate \_\_\_\_\_ (وعدد ضربان القلب)

- ☐ Prevent the backflow of blood
- ☐ is the amount of blood/minute pumped into systemic circuit
- ☒ defined as the number of beats/minute
- ☐ is a defect in one or more heart valves

10. The cardiac output \_\_\_\_\_ (المعدل القلبي)

- ☐ defined as the number of beats/minute
- ☐ is a defect in one or more heart valves
- ☒ is the amount of blood/minute pumped into systemic circuit
- ☐ prevent the backflow of blood



# 11. The heart valves \_\_\_\_\_ (الصمامات)

- ☐ is a defect in one or more heart valves
- ☐ define as the number of beats/minute
- ☐ is the amount of blood/minute pumped into systemic circuit
- ☒ prevent the backflow of blood

# 12. A heart attack is defined as \_\_\_\_\_ (الاحتشاء القلبي)

- ☐ The death of brain tissue from blocked arteries in the head
- ☐ the force blood exerts on vessel walls
- ☐ the development of plaques inside walls of blood vessels
- ☒ the damage to cardiac muscle typically from a blocked coronary artery

# 13. The stroke \_\_\_\_\_ (السكتة الدماغية)

- ☒ is the death of brain tissue from blocked arteries in the head
- ☐ is the damage to cardiac muscle
- ☐ is the plaque inside walls of blood vessels
- ☒ reduces the diastolic pressure

# 14. The heart murmur \_\_\_\_\_

- ☒ is a defect in one or more heart valves
- ☐ is the amount of blood/minute pumped into systemic circuit
- ☐ define as the number of beats/minute
- ☐ prevent the backflow of blood

# 15. Atherosclerosis \_\_\_\_\_ (تصلب الشرايين)

- ☐ is measured as diastolic pressure
- ☒ narrows the blood vessels
- ☐ is the force blood exerts on vessel walls
- ☐ is measured as systolic pressure





16. The pacemaker (SA node) المستقر (العقدة الجيبية الأذنية)

- ☐ relays electrical signals to the ventricles
- ☐ is the amount of blood/minute pumped into systemic circuit
- ☐ is the development of plaques inside walls of blood vessels
- ☒ generates electrical signals in atria
- ☒ sets the rate of heart contractions

17. The AV node العقدة الأذينية البطينية

- ☐ generates electrical signals in atria
- ☐ sets the rate of heart contractions
- ☐ is the amount of blood/minute pumped into systemic circuit
- ☒ relays electrical signals to the ventricles

18. The blood pressure (ضغط الدم)

- ☒ Highest in arteries and lowest in veins
- ☐ is the death of brain tissue from blocked arteries in the head
- ☐ is the damage to cardiac muscle
- ☐ is the block of coronary artery

19. The red blood cells (erythrocytes) (كراتان الدم الحمراء)

- ☒ transport O<sub>2</sub> bound to hemoglobin
- ☐ promote clotting
- ☐ fight infections
- ☐ fight cancer
- ☒ Transport carbon dioxide (CO<sub>2</sub>)

20. The white blood cells (leukocytes) (كراتان الدم البيضاء)

- ☒ function inside and outside the circulatory system
- ☐ are small fragments of cells
- ☐ transport CO<sub>2</sub>
- ☐ transport O<sub>2</sub> bound to hemoglobin
- ☒ fight cancer
- ☒ fight infections



21. The platelets \_\_\_\_\_

(الصفيحات الدموية)

✓ promote clotting

- ☐ fight infections
- ☐ fight cancer
- ☐ transport O<sub>2</sub> bound to hemoglobin
- ✓ ☒ are small fragments of cells

✓ الجلطة / قشر الدم

22. Some athletes artificially increase their red blood cell production by injecting \_\_\_\_\_

- ☐ fibrinogen
- ✓ ☒ erythropoietin
- ☐ immunoglobulins
- ☐ sodium ions

23. Plasma contains fibrinogen, which is converted into fibrin that help \_\_\_\_\_

- ☐ as pH buffering
- ✓ ☒ in blood clotting
- ☐ as solvent for carrying other substance
- ☐ in defense

24. The immunoglobulin are proteins that help the body in \_\_\_\_\_

- A) Osmotic balance
- B) PH buffering
- ✓ ☒ C) Defense
- D) blood pressure

الدفاع

25. If blood vessel is injured platelets help trigger the conversion of \_\_\_\_\_ to \_\_\_\_\_

- A) Plasminogen----plasmin
- B) Albumin----- aminoglobin
- ✓ ☒ C) Fibrinogen-----fibrin
- D) Immunoglobulin-----alphglobin

26. In birds, crocodiles, mammals have \_\_\_\_\_ hearts and two blood circuits that do not mix.

- A) 2-chambers
- ✓ ☒ B) 4-chambers
- C) 1-chambers
- D) 3- chambers

آخر جز 5 12 بر 9



1) The maintenance of steady internal conditions despite fluctuations in the external environment is called \_\_\_\_\_

- ☒ Homeostasis
- ☐ Osmoregulation
- ☐ Excretion
- ☐ all of the above

2) The maintenance of internal temperature within narrow limits is called \_\_\_\_\_

- ☐ Osmoregulation
- ☐ Homeostasis
- ☒ Thermoregulation
- ☐ Excretion

3) The control of the gain and loss of water and solutes is called \_\_\_\_\_

- ☐ All other answers are correct
- ☐ Thermoregulation
- ☒ Osmoregulation
- ☐ Homeostasis

4) the active regulation of osmotic pressure of an organism fluids is \_\_\_\_\_

- ☐ Homeostasis
- ☐ Thermoregulation
- ☒ Osmoregulation
- ☐ All other answers are correct

5) The disposal of nitrogen-containing wastes is called \_\_\_\_\_

- ☒ Excretion
- ☐ Osmoregulation
- ☐ Homeostasis
- ☐ Thermoregulation

6) \_\_\_\_\_ is the process by which waste products are eliminated from an organism

- ☒ Excretion
- ☐ Osmoregulation
- ☐ Homeostasis
- ☐ Thermoregulation

7) Animals that derive body heat mainly from their metabolism are called \_\_\_\_\_

- ☒ Endothermic
- ☐ Ectothermic
- ☐ Herbivorous
- ☐ Photosynthetic

8) Animals that absorb heat from their surroundings are called \_\_\_\_\_

- ☐ Herbivorous
- ☐ Herbivorous
- ☒ Ectothermic
- ☐ Photosynthetic



9) Ectothermic animals \_\_\_\_\_

- ☐ use water and atmospheric CO<sub>2</sub> to produce sugar
- ✓ ☒ absorb heat from their surroundings
- ☐ there is no answer
- ✗ ☐ are represented by birds and mammals

✓ Many fish, most amphibians, lizards,  
most invertebrates

10) Endothermic animals \_\_\_\_\_

- ✓ ☒ Derive body heat mainly from their metabolism
- ✗ ☐ are represented by worms and Molluscs
- ☐ absorb heat from their surroundings
- ✗ ☐ are represented by worms and molluscs

✓ birds and mammals and few reptiles

11) Animals exchange heat with the environment by \_\_\_\_\_

- ✓ ☒ Conduction
- ☐ Pollination
- ☐ Fertilization
- ☐ none of the above

✓ birds and mammals and few reptiles  
✓ Convection  
✓ Radiation  
✓ Evaporation

12) The adaptations that promote the process of thermoregulation include \_\_\_\_\_

- ✓ ☒ Behavioral responses
- ☐ Conduction
- ☐ Convection
- ☐ Radiation

ملخص

13) The freshwater fish \_\_\_\_\_

- ☐ Drink seawater
- ☐ Pump out excess salt
- ✓ ☒ Gain water by osmosis
- ☐ All other answers are correct

ملخص



14) In vertebrates the excretion is primarily carried out by \_\_\_\_\_

- ☒ Kidneys
 ☐ Lungs
 ☒ Skin
- ☐ Gills
 ☐ there is no answer

15) In mammals, the ureters drain urine into \_\_\_\_\_

- ☒ urinary bladder
 ☐ Renal artery and vein
- ☐ Inferior vena cava
 ☐ there is no answer

16) In mammals, the urine is expelled through \_\_\_\_\_

- ☒ Urethra
 ☐ Aorta
- ☐ Inferior vena cava
 ☐ Aorta and Inferior vena cava

17) The key excretory processes of the urinary system include \_\_\_\_\_

- ☒ Secretion
 ☐ Filtration
- ☐ Conduction
 ☐ Reabsorption
- ☐ Radiation
 ☐ Excretion
- ☐ Conduction AND Radiation

18) The kidney dialysis can be a lifesaver by \_\_\_\_\_

- ☒ Maintaining the solute concentration in the blood
- ☐ there is no answer
 ☒ Removing wastes from the blood
- ☐ Maintaining the toxic compounds in the blood
- ☒ Extracting a filtrate from the urine

19) The nitrogenous wastes are toxic breakdown products of \_\_\_\_\_

- ☐ Fats
 ☐ Inorganic compounds
- ☐ Fats AND Inorganic compounds
 ☒ Protein
 ☒ Nucleic acids

20) The animals dispose of nitrogenous wastes in the form of \_\_\_\_\_

- ☐ Sugar
 ☐ Nitrate
- ☒ Ammonia (NH<sub>3</sub>)
 ☐ Nitrate AND Sugar
- ☒ Urea
 ☒ uric acid



21) Ammonia (NH<sub>3</sub>) is \_\_\_\_\_

- ☐ Easier to store
- ☐ non Poisonous
- ☒ Easily disposed of by aquatic animals
- ☐ Less toxic

✓ Poisonous  
✓ Soluble in water

22) Urea Is \_\_\_\_\_

- ☐ Easily disposed of by aquatic animals
- ☐ Poisonous
- ☒ Less toxic
- ☐ Soluble in water

✓ Easier to store

23) The nitrogen-containing metabolic waste products in most aquatic animals is \_\_\_\_\_

- ☐ Carbonate
- ☐ Urea
- ☐ Uric acid
- ☒ Ammonia

24) \_\_\_\_\_ is the nitrogen-containing metabolic waste products in mammals, amphibians, sharks, and some bony fishes

- ☐ Carbonate
- ☒ Urea
- ☐ Uric acid
- ☐ Ammonia

25) The nitrogen-containing metabolic waste products in birds and many reptiles, insects, and Snails is \_\_\_\_\_

- ☒ Uric acid
- ☐ Urea
- ☐ Carbonate
- ☐ Ammonia

26) Excess of CO<sub>2</sub> or O<sub>2</sub> in the plant leaves exit through \_\_\_\_\_

- ☒ Stomata
- ☐ Phloem
- ☐ Cortex
- ☐ there is no answer

✓ penetrating the external cell on surfaces directly to the air



27) Secretion of water and its solutes by hydathodes found in the leaf's epidermis of some plants is called \_\_\_\_\_

- ☒ Guttation ☐ Transpiration  
☐ Photosynthesis ☐ there is no answer

28) The evaporation of water from the surface of leaves through stomata is called \_\_\_\_\_

- ☐ Photosynthesis ☒ Transpiration  
☐ Respiration ☐ there is no answer

29) The halophytes excrete the excess salts outside their body by \_\_\_\_\_

- ☒ Special salt glands ☐ vascular bundles  
☐ Stomata ☐ all of the above

30) In \_\_\_\_\_ the excess of amino acids are converted to ammonia and keto acids

- ☐ terrestrial plants ☒ aquatic plants  
☐ prokaryotic ☐ All other answers are correct

31) \_\_\_\_\_ convert excess amino acids into uric acid and Keto acids.

- ☒ terrestrial plants ☐ aquatic plants  
☐ prokaryotic ☐ All other answers are correct

32) The terrestrial plants convert excess amino acids into \_\_\_\_\_

- ☒ Uric acid and Keto acids ☐ ammonia and urea  
☐ keto acids and urea ☐ ammonia and Keto acids

33) In aquatic plants the excess of amino acids are converted to \_\_\_\_\_

- ☒ Ammonia and keto acids ☐ uric acids and keto acids  
☐ keto acids and urea ☐ ammonia and urea



- 34) Osmoregulation is the control of the \_\_\_\_\_ and \_\_\_\_\_ of water and solutes
- A) addition-subtraction  
☒ C) gain-loss  
 B) acids-bases  
 D) ions-cations
- 35) Mammals, birds, few reptiles are \_\_\_\_\_
- A) Ectothermic  
 B) mesothermic  
 B) exothermic  
☒ D) endothermic
- 36) Evaporating cooling of thermoregulation includes panting and \_\_\_\_\_
- A) breathing  
☒ C) sweating  
 B) urinating  
 D) defecating
- 37) \_\_\_\_\_ cooling of thermoregulation includes panting and sweating.
- A) Extensive  
 C) Transpirative  
 B) effective  
☒ D) Evaporative
- 38) Osmoconformers are animals having the same internal \_\_\_\_\_ concentration as seawater.
- A) blood  
☒ C) solute  
 B) basic  
 D) acid
- 39) Marine animals with a solute concentration equal to that of the surrounding seawater are \_\_\_\_\_
- A) osmoregulators.  
 C) osmoinformers.  
☒ B) osmoconformers.  
 D) hypertonic.
- 40) Many \_\_\_\_\_ invertebrates are osmoconformers.
- A) Terrestrial  
 C) Desert  
☒ B) marine  
 D) fresh water

(الأضدة)

بالقفوق والنجام



1) Sexual reproduction Involves \_\_\_\_\_

✓ inheritance of unique sets of genes  
from two parents

- ☐ Offspring are similar to one parent
- ☐ inheritance of unique sets of genes from one parent
- ☒ Offspring are similar to parents, but show variations in traits
- ☐ there is no answer

2) Asexual reproduction \_\_\_\_\_

- ☒ Very rapid reproduction
- ☐ One parent produces genetically different offspring
- ☐ All other answers are correct
- ☐ unique offspring

3) Asexual reproduction includes \_\_\_\_\_

- ☒ there is no answer
- ☒ Binary fission
- ☒ mitosis
- ☒ meiosis

✓ Budding

✓ Fragmentation

4) Offspring of asexual reproduction \_\_\_\_\_

- ☐ there is no answer
- ☐ are different from the original cell or organism
- ☐ Involves inheritance of all genes from two parents
- ☒ Involves inheritance of all genes from one parent

5) Prokaryotes are reproduced by \_\_\_\_\_

- ☒ mitosis
- ☒ meiosis
- ☒ asexually
- ☒ mitosis AND meiosis

✓ Binary fission

6) Prokaryotes are reproduced by \_\_\_\_\_

- ☒ Binary fission
- ☒ sexually
- ☒ asexually AND binary fission
- ☒ asexually



7) Binary fission

☒ Occurs in eukaryotic cells

☒ means dividing in half

☐ produces two different cells from one cell

☒ there is no answer

8) Fertilization is the union of

☐ All other answers are correct

☐ testis and ovary to form a sex organ

☐ sperm and egg to form a sex organ

☒ sperm and egg to form a diploid zygote

not haploid

9) In Sexual reproduction, sperm may be transferred to the female by

☒ Insects الحشرات

☒ External fertilization

☒ Internal fertilization

☒ All other answers are correct

☒ Wind الرياح

10) Human Male Reproductive anatomy has

☐ Ovaries contain follicles that Nurture eggs and Produce sex hormones

☐ The uterus opens into the vagina through the cervix

☒ Testes produce Sperm

☐ there is no answer

11) Human Female Reproductive anatomy has

☒ Oviducts convey eggs to the uterus where embryos develop

☐ Testes produce Sperm

☐ Epididymis stores sperm as they develop further

☒ All other answers are correct



12) The vagina \_\_\_\_\_✓ Forms the birth canal

- ☒ Receive the egg from the ovary  
☒ Is the site for egg fertilization  
☒ Receives the penis during sexual intercourse  
☒ Is for external fertilization

13) Both sexes in humans have \_\_\_\_\_
 ✓ Ducts for gamete transport  
 ✓ Structures for copulation

- ☐ Carpels كلمة يارسة  
☒ A set of gonads where gametes (sperms & ovum) are produced  
☐ Sepals سبيل  
☐ Sepals AND Carpels

14) Hermaphroditism \_\_\_\_\_ (الخنثى)

- ☐ Two individuals with male and female reproductive systems  
☒ one individual with male and female  
☒ One parent produces genetically identical offspring  
☐ One individual with male reproductive system and the other with female reproductive systems

15) Which of the following statement is true?

- ☐ Spermatogenesis (the sperm formation) Occurs in Ovaries  
☐ there is no answer  
☒ Spermatogenesis (the sperm formation) Occurs in seminiferous tubules  
☐ Oogenesis (the egg formation) Occurs in testes

16) Menstrual Cycles Occur about every \_\_\_\_\_ days

- ☐ 29  
☒ 28  
☐ 21  
☐ there is no answer.





17) Sperm are adapted to reach and fertilize an egg via \_\_\_\_\_

- ☐ Less mitochondria provide ATP for tail movements
- ☐ Cubical shape moves more easily through fluids
- ☒ Many mitochondria provide ATP for tail movements
- ☐ Head contains a diploid nucleus



18) Cleavage \_\_\_\_\_

- ☐ there is no answer
- ☒ is a rapid series of cell divisions
- ☐ Embryo is getting <sup>not</sup> larger
- ☐ is a slow series of cell divisions



19) Gastrula produces \_\_\_\_\_

- ☐ a four-layered embryo
- ☒ a three-layered embryo
- ☐ a two-layered embryo
- ☐ a one-layered embryo

20) The endoderm layer inside the human embryo (gastrula) become \_\_\_\_\_

- A) Kidney
- B) Skin and nervous system
- C) Muscle and bones
- ☒ D) Digestive tract

21) The ectoderm layer outside the human embryo (gastrula) become \_\_\_\_\_

- A) Kidney
- ☒ B) Skin and nervous system
- C) Muscle and bones
- D) Digestive tract

22) The mesoderm layer in middle the human embryo (gastrula) become \_\_\_\_\_

- A) Kidney
- B) Skin and nervous system
- ☒ C) Muscle and bones
- D) Digestive tract

23) Which of the following is Contribute to semen production?

- ☒ A) Epididymis
- ☒ B) prostate
- ☒ C) bulbourethral
- D) All of above are correct



24) The uterus opens into the \_\_\_\_\_ through the \_\_\_\_\_

A) penis .....testis

B) ovary ..... oviduct

☒ C) Vagina ..... cervix

D) Follicles.....embryo

25) A women cervix opens to the \_\_\_\_\_, where embryo development

☒ A) Uterus الرحم

B) Vagina

C) Ovary

D) Oviduct

26) The female's \_\_\_\_\_, receives the penis during sexual intercourse and forms the birth canal.

A) Oviducts

☒ B) vagina

C) Ovary

D) uterus

27) Follicle stimulating hormone (FSH) stimulates the growth of \_\_\_\_\_

A) Interstitial follicles

☒ B) Ovarian follicles

C) The corpus leuteum follicles

D) Sperm cells

28) Leutenizing hormone (LH) stimulates \_\_\_\_\_

A) Interstitial follicles

B) Ovarian follicles

☒ C) Ovulation

D) Sperm cells

29) Estrogen and progesterone are produced by \_\_\_\_\_

A) anterior pituitary.

☒ B) corpus luteum

C) hypothalamus.

D) ovarian follicle

30) Meiosis of the ovum is completed after \_\_\_\_\_

A) Regeneration

☒ B) fertilization

C) Packing

D) manufacturing

31) Many aquatic invertebrates and most fishes and amphibians exhibit \_\_\_\_\_

A) Internal fertilization

☒ B) External fertilization

C) Copulation

D) regeneration



1) Pairs of autosomes

- ☐ different in Centromere position
- ☐ different in Centromere position AND have different size
- ☐ have different size
- ☒ matched in Length

✓ Have the same...  
✓ Matched in ...

2) Homologous chromosomes are

- ☐ different in Gene locations
- ☐ All other answers are correct
- ☒ matched in Centromere position
- ☐ different in Centromere position

✓ Have the same...  
✓ Matched in ...

3) Sex chromosomes are

- ☐ matched in Centromere position
- ☒ matched in Length
- ☐ different in Length
- ☐ there is no answer

✓ Different in ...

4) Eukaryotic Cell Division includes

- ☒ Binary fission
- ☒ meiosis
- ☒ budding
- ☐ there is no answer

✓ Mitosis  
✓ produces two identical cells from one cell

5) The sequence of Eukaryotic Cell Cycle is

- ☒ G<sub>1</sub>, S, M, and G<sub>2</sub>
- ☐ G<sub>1</sub>, S, G<sub>2</sub>, and M
- ☒ S, G<sub>1</sub>, G<sub>2</sub>, and M
- ☐ All other answers are correct

## 6) \_\_\_\_\_ is a part of Eukaryotic Cell Cycle

- ☒ G<sub>1</sub>
- ☒ M
- ☒ G<sub>2</sub>
- ☒ G<sub>1</sub> AND G<sub>2</sub>

المفروض  
كله صح

✓ G<sub>1</sub>  
✓ G<sub>2</sub>  
✓ S



7) \_\_\_\_\_ is a part of Eukaryotic Cell Cycle

☐ G1

☐ G2

☐ S

☒ All other answers are correct

8) The Interphase of Eukaryotic Cell Cycle includes \_\_\_\_\_ phases

☐ G2, S, and M ✗

☒ G1, S, and G2

☐ G1, and G2

☒ M, G1, and G2

9) G1 \_\_\_\_\_

☒ first gap phase, growth and prepares for S-phase
☐ second gap phase, growth and preparation for division
☐ DNA synthesis phase, duplication of chromosomes, each becomes two sister chromatids
☐ All other answers are correct

10) G2 \_\_\_\_\_

☐ first gap phase, growth and prepares for S-phase
☒ second gap phase, growth and preparation for division
☐ DNA synthesis phase, duplication of chromosomes, each becomes two sister chromatids
☐ All other answers are correct

11) S \_\_\_\_\_

☐ First gap phase, growth and prepares for S-phase
☐ There is no answer

☒ DNA synthesis phase, duplication of chromosomes, each becomes two sister chromatids
☐ second gap phase, growth and preparation for division

12) \_\_\_\_\_ is (are) first gap phase, growth and prepares for S-phase

☐ S

☐ there is no answer

☒ G1

☐ G2



19) The all Mitotic phases of Eukaryotic Cell Cycle are \_\_\_\_\_

- ☐ Prophase, Prometaphase, Metaphase, and Telophase
- ☐ Prophase, Prometaphase, Anaphase, and Telophase
- ☐ Prophase, Prometaphase, Metaphase, and Anaphase

✓ ☒ Prophase, Prometaphase, Metaphase, Anaphase, and Telophase

20) \_\_\_\_\_ is (are) Chromatin condenses and chromosomes become visible

- ☐ Anaphase
- ☒ Prophase
- ☐ Metaphase
- ☐ All other answers are correct

21) \_\_\_\_\_ is (are) Chromosomes align on cells midplane on top of each other

- ☐ Prophase
- ☒ Metaphase
- ☐ Telophase
- ☐ there is no answer

22) \_\_\_\_\_ is (are) Sister chromatids separate, move to opposite poles.

- ☒ Anaphase
- ☐ Prophase
- ☐ Metaphase
- ☐ All other answers are correct

23) \_\_\_\_\_ is (are) Sister chromatids separate, move to opposite poles.

- ☐ Prophase
- ☐ Metaphase
- ☒ Telophase
- ☐ there is no answer

24) \_\_\_\_\_ is (are) Chromosomes decondensed. Cytokinesis begins

- ☒ Telophase
- ☐ Metaphase
- ☐ Prophase
- ☐ All other answers are correct

25) Prophase \_\_\_\_\_

- ☐ Chromosomes decondensed. Cytokinesis begins
- ☐ Chromosomes align on cells midplane on top of each other.
- ☐ there is no answer

✓ ☒ Chromatin condenses and chromosomes become visible.



26) Metaphase

- ☒ Chromosomes decondensed. Cytokinesis begins
- ☒ Chromosomes align on cells midplane on top of each other.
- ☐ there is no answer
- ☒ Chromatin condenses and chromosomes become visible.

27) Anaphase

- ☒ Chromosomes decondensed. Cytokinesis begins
- ☒ Sister chromatids separate, move to opposite poles.
- ☒ Chromosomes align on cells midplane on top of each other.
- ☒ Chromatin condenses and chromosomes become visible.

28) Telophase

- ☒ Chromosomes decondensed. Cytokinesis begins
- ☒ Chromosomes align on cells midplane on top of each other.
- ☐ there is no answer
- ☒ Chromatin condenses and chromosomes become visible.

29) Cytoplasmic division

- ☒ is called Cytokinesis
- ☒ is called Cytosol
- ☒ is called Cytogenesis
- ☒ overlaps with Anaphase

☒ overlaps with telophase

30) Cytokinesis in animal cells

- ☐ A cell plate forms in the middle from vesicles
- ☐ Forms a cell plate
- ☒ forms a cleavage furrow
- ☐ All other answers are correct

☒ separates the contents into two cells





# احياء الدوري النهائي شابر ١١ ، شابر ١٢ جزء ١،٢ كا...

20 December 2017

20 December 2017

## 31) Cytokinesis in plant cells \_\_\_\_\_

- ☒ forms a cell plate AND separates the contents into two cells
- ☒ forms a cell plate
- ☒ separates the contents into two cells
- ☒ forms a cleavage furrow

## 32) Synapsis occurs during \_\_\_\_\_

- ☒ prophase of meiosis II AND mitosis
- ☒ meiosis I
- ☐ prophase of meiosis II ☒
- ☐ mitosis ☒

✓ prophase of meiosis I

## 33) Synapsis occurs during \_\_\_\_\_

- ☒ prophase of meiosis I AND meiosis I
- ☒ prophase of meiosis I
- ☒ metaphase of meiosis II ☒
- ☒ meiosis I

## 34) Tetrads forms during \_\_\_\_\_

- ☒ mitosis ☒
- ☒ meiosis I
- ☒ metaphase of meiosis I
- ☒ metaphase of meiosis I AND meiosis I

✓ prophase of meiosis I

## 35) Crossing over occurs during \_\_\_\_\_

- ☐ Metaphase of meiosis II ☒
- ☒ Prophase of meiosis I
- ☒ meiosis II AND metaphase of meiosis II
- ☐ meiosis II ☒

✓ meiosis I  
 ✓ metaphase of meiosis I

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دكتور / شامو الشمراني

5



20 December 2017

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36) Sister chromatids separate during \_\_\_\_\_

- ☒ mitosis ☒ telophase  
☒ Anaphase ☒ meiosis I

✓ meiosis II

37) Sister chromatids separate during \_\_\_\_\_

- ☒ meiosis II ☒ Anaphase  
☒ mitosis ☒ All other answers are correct

38) homologous chromosomes separate during \_\_\_\_\_

- ☐ meiosis II ☒ Anaphase X  
☐ meiosis I AND Anaphase X ☒ meiosis I

mitosis

39) During meiosis I \_\_\_\_\_

- ☒ sister chromatids separate  
☒ diploid cell is produced

✓ homologous chromosomes separate  
✓ haploid cell is produced

- ☒ The chromosome number is reduced by half  $2n$  to  $1n$   
☐ All other answers are correct

40) During meiosis II \_\_\_\_\_

- ☐ The chromosome number is reduced by half  
☒ sister chromatids separate  
☐ All other answers are correct  
☐ homologous chromosomes separate

✓ chromosome number remains the same  
✓ haploid cell is produced

41) Meiosis \_\_\_\_\_

- ☒ has one interphase  
☒ has one cytokinesis  
☒ produces diploid cells  
☒ has two interphases



42) Meiosis

☒ has two divisions AND has one S phase الانقسام

☐ has two interphases

☒ has one S phase

☒ has two divisions

## 43) The genetic material is duplicated during \_\_\_\_\_ of the cell cycle.

A) Mitotic phase

☒ B) S-phase

C) G<sub>2</sub>

D) telophase

## 44) Replicate copies of each chromosome are called \_\_\_\_\_ and are joined by \_\_\_\_\_

A) homologous / centromere.

B) sister chromatids / kinetochore.

☒ C) sister chromatids / centromere.

D) sister chromatids / spindle

## 45) Condensed DNA and protein complex, make up \_\_\_\_\_

A) RNA

B) gene

☒ C) Chromosome

D) chromatin

46) When cell is not dividing, the genetic material is decondensed and is called \_\_\_\_\_

A) Lysosome

☒ B) chromatin

C) Chromosome

D) None of the above

الزفيدة



1) Haploid cells

- ☐ Have three homologous sets of chromosomes ( $3n$ )
- ☒ Are sex cells
- ☐ Have two homologous sets of chromosomes ( $2n$ )
- ☐ Are mainly somatic cells

✓ have one set of chromosomes ( $1n$ )

2) Diploid cells

- ☐ are sex cells
- ☒ have two homologous sets of chromosomes ( $2n$ )
- ☐ have one set of chromosomes ( $1n$ )
- ☐ have three homologous sets of chromosomes ( $3n$ )

✓ Are mainly somatic cells

3) Which of the following is true in mammals sex determination system?

- ☐ XY = female AND ZW = male
- ☒ XY = male
- ☐ XY = female
- ☐ ZW = male

✓ XX = female

4) Which of the following is true in grasshoppers sex determination system?

- ☐ XX = male
- ☒ XX = female
- ☐ ZW = male
- ☐ All other answers are correct

✓ XO = male

5) Which of the following is true in birds sex determination system?

- ☒ ZW = female
- ☐ XY = female
- ☐ ZW = male
- ☐ All other answers are correct

✓ ZZ = male

6) Which of the following is true in bees sex determination system?

- ☐ haploid = female
- ☐ Diploid = male AND haploid = female
- ☒ haploid = male
- ☐ Diploid = male

✓ Diploid = female



7) Copy of a gene is called \_\_\_\_\_

- ☐ Sister chromosomes AND Gametes      ☐ Sister chromosomes  
☐ Gametes      ☒ alleles

8) Which of the following is Homozygous?

- ☐ ab      ☒ Two identical alleles  
☐ Aa AND ab      ☐ Aa

✓ AA

✓ aa

9) Which of the following is Heterozygous?

- ☒ Aa      ☐ aa  
☐ AA AND aa      ☐ AA

✓ Two different alleles

✓ ab

10) Alleles that is expressed in the heterozygous \_\_\_\_\_

- ☒ Dominant allele      ☐ Recessive allele

11) Alleles that is not expressed in the heterozygous \_\_\_\_\_

- ☐ Dominant allele      ☒ Recessive allele

12) Open circle in human pedigree is symbol for \_\_\_\_\_

- ☐ affected female      ☒ normal female  
☐ normal male      ☐ affected male

13) Filled circle in human pedigree is symbol for \_\_\_\_\_

- ☒ affected female      ☐ normal female  
☐ normal male      ☐ affected male

14) Open square in human pedigree is symbol for \_\_\_\_\_

- ☐ affected female      ☐ normal female  
☒ normal male      ☐ affected male

15) Filled square in human pedigree is symbol for \_\_\_\_\_

- ☐ affected female      ☐ normal female  
☐ normal male      ☒ affected male



16) Normal female in genetic pedigree is represented by \_\_\_\_\_

- ☐ Filled square
- ☐ Filled circle
- ☐ there is no answer
- ☒ Open circle

17) Affected female in genetic pedigree is represented by \_\_\_\_\_

- ☐ Filled square
- ☒ Filled circle
- ☐ Open circle
- ☐ All other answers are correct

18) Normal male in genetic pedigree is represented by \_\_\_\_\_

- ☐ Filled square
- ☐ Filled circle
- ☒ Open square
- ☐ there is no answer

19) Affected male in genetic pedigree is represented by \_\_\_\_\_

- ☐ Open square
- ☒ Filled square
- ☐ Open circle
- ☐ Open circle AND Open square

20) In Mendel experiment, the heritable factors is now known as \_\_\_\_\_

- ☐ chromatids
- ☐ chromomers
- ☐ there is no answer
- ☒ genes

21) Which of the following statements are true \_\_\_\_\_

- ☐ Recessive allele appears in the F<sub>1</sub> generation
- ☐ Recessive and dominant allele disppear in the F<sub>2</sub> generation
- ☐ All other answers are correct
- ☒ dominant allele appears in the F<sub>2</sub> generation

✓ in the F<sub>1</sub> generation

- ☐ dominant allele appears
- ☐ Recessive allele disppear

✓ in the F<sub>2</sub> generation

- ☐ dominant and Recessive allele appear



22) Which of the following is an exception to Mendel's Laws?

- ☒ dominance
- ☒ Co-dominance
- ☒ recessiveness
- ☒ Segregation

- ✓ Incomplete dominance
- ✓ multiple alleles
- ✓ polygens
- ✓ polytropy

23) \_\_\_\_\_ is referred to as Heterozygote expresses phenotypes of both homozygotes.

- ☐ Pleiotropy
- ☒ Co-dominance
- ☐ Incomplete dominance
- ☐ Multiple alleles

there is no answer

24) \_\_\_\_\_ is referred to as Heterozygote has intermediate phenotype.

- ☐ there is no answer
- ☐ Codominance
- ☒ Incomplete dominance
- ☐ Pleiotropy

25) \_\_\_\_\_ is referred to as three or more alleles in a population for same locus.

- ☐ Incomplete dominance
- ☒ Multiple alleles
- ☐ Polygenes
- ☐ Pleiotropy

26) \_\_\_\_\_ is referred to as Multiple independent pairs of genes may have similar and additive effects on the phenotype

- ☒ Incomplete dominance
- ☐ Multiple alleles
- ☒ Polygenes
- ☐ Pleiotropy

27) \_\_\_\_\_ is referred to as the phenomenon of one gene mutation being responsible for or affecting more than one phenotypic characteristic.

- ☐ Incomplete dominance
- ☒ Multiple alleles
- ☐ Polygenes
- ☒ Pleiotropy



28) Codominance is referred to \_\_\_\_\_

☒ Heterozygote expresses phenotypes of both homozygotes

☐ there is no answer

☐ Heterozygote has intermediate phenotype

☐ Multiple independent pairs of genes may have similar and additive effects on phenotype

29) Incomplete dominance is referred to \_\_\_\_\_

☐ Heterozygote expresses phenotypes of both homozygotes

☐ there is no answer

☒ Heterozygote has intermediate phenotype

☐ Multiple independent pairs of genes may have similar and additive effects on the phenotype.

30) Polygenes is referred to \_\_\_\_\_

☐ Heterozygote expresses phenotypes of both homozygotes

☒ Multiple independent pairs of genes may have similar and additive effects on the phenotype.

☐ Three or more alleles in a population for the same locus.

☐ The phenomenon of one gene mutation being responsible for or affecting more than one phenotypic characteristic (= Single traits).

31) Multiple alleles is referred to \_\_\_\_\_

☒ Three or more alleles in a population for the same locus.

☐ The phenomenon of one gene mutation being responsible for or affecting more than one phenotypic characteristic.

☐ there is no answer

☐ Multiple independent pairs of genes may have similar and additive effects on the phenotype.

32) Pleiotropy is referred to \_\_\_\_\_

☒ All other answers are correct

☒ Multiple independent pairs of genes may have similar and additive effects on the phenotype.

☒ Three or more alleles in a population for the same locus.

☒ The phenomenon of one gene mutation being responsible for or affecting more than one phenotypic characteristic.

33) In mammals sex is determined by \_\_\_\_\_

☒ X-Y system

B) Z-W system

C) Number of chromosome

D) X-O system

34) In grasshopper and roaches sex is determined by \_\_\_\_\_

A) X-Y system

B) Z-W system

C) Number of chromosome

☒ X-O system

35) In birds and butterflies is determined by \_\_\_\_\_

A) X-Y system

☒ Z-W system

C) Number of chromosome

D) X-O system

36) In ants and bees sex is determined by \_\_\_\_\_

A) X-Y system

B) Z-W system

☒ Number of chromosome

D) X-O system

37) For each character, an organism inherits two, one from each parent.

☒ Alleles

B) genes

C) traits

D) DNA

38) A \_\_\_\_\_ gene may mask the expression of a \_\_\_\_\_ gene.

A) Recessive - dominant

B) sex - autosomal

☒ Dominant - recessive

D) sex - recessive



39) \_\_\_ carry two different alleles of a locus whereas, \_\_\_ carry identical alleles

A) Diplozygous--- heterozygous

☒ B) heterozygous ---homozygous

C) homologous---- homozygous

D) homozygous ---heterozygous

40) The Phenotypic ratio of F<sub>2</sub> generation in monohybrid cross is \_\_\_\_\_

☒ A) 3:1

B) 4:1

C) 1:2:1

D) none of the above

41) The genotypic ratio of F<sub>2</sub> generation in monohybrid cross is \_\_\_\_\_

A) 3:1

☒ B) 1:2:1

C) 2:3

D) all of the above

42) In mendels F<sub>2</sub> generation, one out of four plants had one white flowers  
because \_\_\_\_\_

A) The trait is sex -linked

☒ B) both patterns where heterozygous purple

C) One parent was homozygous recessive

D) both patterns where heterozygous white

الزينة

9 December 2017

9 December 2017

١٤٣٩ .. النصف الدراسي الاول .. دفعة ١٨ .. الدوري النهائي

# د . جمال الشعراوي

تست / خرد

جزء ١

## Chapter (9):- Gas exchange



Biology



Biology

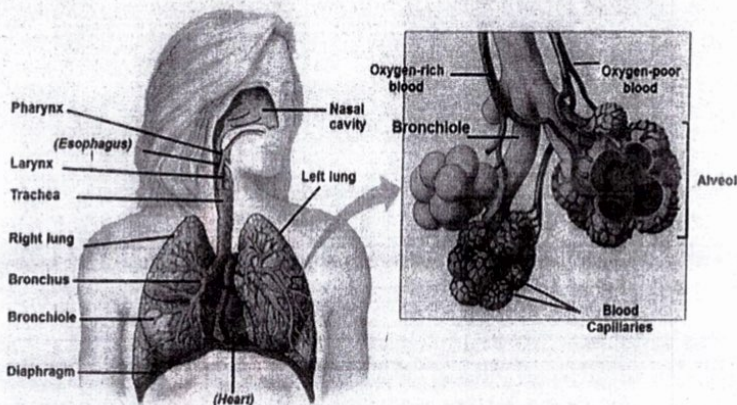


Biology



Biology

Biology



The anatomy of the human respiratory system (left)  
and details of the structure of alveoli (right)

جدة

كيمياء حيوية للكليات الطبية

احياء



0556806264





1. In the human respiratory system, air passes from nostrils to \_\_\_\_\_

☐ Alveoli

☐ larynx

☒ Nasal cavity

☐ pharynx

2. In the human respiratory system, air passes from nasal cavity to \_\_\_\_\_

☐ Alveoli

☐ larynx

☐ bronchioles

☒ pharynx

3. In the human respiratory system, air passes from pharynx to the \_\_\_\_\_

☐ bronchioles

☐ nasal cavity

☒ larynx

☐ trachea

4. In the human respiratory system, air passes from larynx to the \_\_\_\_\_

☐ bronchioles

☐ nasal cavity

☐ larynx

☒ trachea

5. In the human respiratory system, air passes from trachea to the \_\_\_\_\_

☐ bronchioles

☐ nasal cavity

☐ larynx

☒ Bronchi

6. In the human respiratory system, air passes from bronchi to the \_\_\_\_\_

☒ bronchioles

☐ nasal cavity

☐ larynx

☐ Bronchi

7. In the human respiratory system, air passes from bronchioles to \_\_\_\_\_

☐ trachea

☐ nasal cavity

☒ alveoli

☐ Bronchi

8. The actual site of gas exchange in human is \_\_\_\_\_

☐ larynx

☒ alveoli

☐ vocal cord

☐ nasal cavity



9. Alveoli are \_\_\_\_\_

- ☐ having small surface area
- ☐ the site where O<sub>2</sub> diffuses out of the blood
- ✓ ☒ the site where CO<sub>2</sub> diffuses out of the blood
- ☐ the site where CO<sub>2</sub> diffuses into the blood



10. In the lungs, blood \_\_\_\_\_ (الدم)

- ✗ ☐ drops off urine
- ☐ picks up CO<sub>2</sub>
- ☐ drops off O<sub>2</sub>
- ✓ ☒ drops off CO<sub>2</sub>

✓ picks up O<sub>2</sub>

11. In the body tissues, blood \_\_\_\_\_

- ☐ drops off CO<sub>2</sub>
- ✗ ☐ drops off waste products
- ✓ ☒ picks up CO<sub>2</sub>
- ☐ picks up O<sub>2</sub>

✓ Drops off O<sub>2</sub>

12. During the transport of gases between alveoli and blood \_\_\_\_\_

- ✗ ☐ O<sub>2</sub> moves from the blood into the tissues
- ✓ ☒ CO<sub>2</sub> moves from the blood into the alveoli of the lungs
- ✗ ☐ the tissues have more CO<sub>2</sub> and less O<sub>2</sub> than in the blood
- ✗ ☐ CO<sub>2</sub> moves from the tissues into the blood



13. During the transport of gases between blood and tissues \_\_\_\_\_

- ✗ ☐ Gases in the alveoli have more O<sub>2</sub> and less CO<sub>2</sub> than gases the blood
- ✓ ☒ CO<sub>2</sub> moves from the tissues into the blood
- ✗ ☐ CO<sub>2</sub> moves from the blood into the alveoli of the lungs
- ✗ ☐ O<sub>2</sub> moves from the alveoli of the lungs into the blood





14. The iron-containing pigment (hemoglobin)

- ☐ is found only in birds
- ☐ is found in Arthropods
- ☒ is found in almost all vertebrates
- ☐ is found in Mollusca



15. The copper-containing pigment (hemocyanin)

- ☒ is found in Mollusca
- ☐ is found in many mammals X
- ☐ is found in almost all vertebrates X
- ☐ is found only in birds X

✓ Is found in Arthropods (insects)

16. Inhalation occurs when \_\_\_\_\_.

- ☒ the volume of the chest cavity increases, lowering the air pressure around lungs.
- ☐ the diaphragm moves upward
- ☐ the rib cage contracts
- ☐ air is forced out of the respiratory tract



17. Exhalation occurs when \_\_\_\_\_.

- ☐ air rushes into lungs to equalize the pressure difference
- ☐ the volume of the chest cavity increases, lowering the air pressure around lungs.
- ☒ the diaphragm moves upward
- ☐ the diaphragm moves downward



18. The major site of gas exchange in \_\_\_\_\_ are gills.

- ☐ tetrapods that live on land
- ☐ mammals
- ☐ jellies
- ☒ fish

19. the major site of gas exchange in \_\_\_\_\_ are tracheal systems

- ☐ mammals
- ☐ fish
- ☒ arthropods
- ☐ jellies

✓ insects



20. the major site of gas exchange in \_\_\_\_\_ are lungs

- ☐ sponges
- ☒ birds
- ☐ arthropods
- ☐ fish

- ✓ Tetrapods that live on land
- ✓ Mammals
- ✓ Reptiles

21. The skin is the major site of gas exchange in \_\_\_\_\_

- ☒ flatworms
- ☐ mammals
- ☐ arthropods
- ☐ tetrapods that live on land

- ✓ Earthworm
- ✓ Sponge
- ✓ jellies

22. Amphibians use \_\_\_\_\_ as the respiratory surface

- ☒ Small lungs
- ☐ more complex lungs
- ☐ simple lungs
- ☐ lungs

- ✓ their body surfaces

23. Nonbird reptiles use \_\_\_\_\_ as the respiratory surface

- ☒ Simple lungs
- ☐ more complex lungs
- ☐ their body surfaces
- ☐ small lungs

24. Birds and mammals use \_\_\_\_\_ as the respiratory surface

- ☐ their body surfaces
- ☒ more complex lungs
- ☐ simple lungs
- ☐ small lungs

25. Gills \_\_\_\_\_

- ☐ release oxygen
- ☒ release carbon dioxide
- ☐ decrease the surface to volume ratio
- ☐ absorb carbon dioxide





26. Smoking \_\_\_\_\_ التمخين X X

- ☒ decreases the harmful types of cholesterol  
☒ reduces blood pressure  
☒ decreases the risk of heart attacks and strokes  
☒ raises blood pressure



27. \_\_\_\_\_ are a grape-like cluster of air sacs where gas exchange occurs.

- ☒ A) Alveoli ←  
 B) Bronchi  
 C) Trachea  
 D) bronchioles

28. Cellular respiration requires a continuous supply of O<sub>2</sub> and \_\_\_\_\_ of CO<sub>2</sub>.

- ☒ A) charging  
 B) activation  
☒ C) disposal التخلص  
 D) inhibition

29. The O<sub>2</sub> that diffuses into blood attaches to \_\_\_\_\_ in red blood cells.

- ☒ A) Plasma  
 B) white blood cells  
☒ C) Hemoglobin  
 D) platelets

30. Most of carbon dioxide in blood is transported as bicarbonate ions in \_\_\_\_\_

- ☒ A) Plasma  
 B) Red blood cells  
 C) White blood cells  
 D) Platelets

31. Most of carbon dioxide (CO<sub>2</sub>) in blood is transported as \_\_\_\_\_ ions in plasma

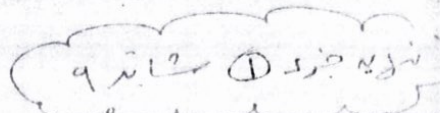
- ☒ A) Bicarbonates ions  
 B) Carbonyl  
 C) Carbon monoxide  
 D) Carbonate

32. The breathing control centers sense and respond to \_\_\_\_\_ levels in blood

- A) Oxygen  
☒ B) CO<sub>2</sub>  
 C) water  
 D) hormones

33. The breathing control centers are found in the \_\_\_\_\_

- A) Head and aorta  
 B) Larynx and pharynx  
☒ C) Pons and medulla oblongata  
 D) Esophagus and trachea





## 1. The heart \_\_\_\_\_ (القلب)

- ☐ Carries food through body
- ☒ Pumps blood through body
- ☐ Carries oxygen through body
- ☐ Is network of hollow tubes

## 2. The blood vessels \_\_\_\_\_ (الأوعية الدموية)

- ☐ Pump blood through body
- ☐ Carry O<sub>2</sub> to the lungs
- ☐ Carry waste to body cells
- ☒ Transport blood throughout the entire body

✓ are networks of hollow tubes

## 3. The blood \_\_\_\_\_ (الدم)

- ☒ carries food through body
- ☐ pumps blood through body
- ☐ transport blood throughout the entire body
- ☐ is network of hollow tubes

✓ carry waste to body cells  
✓ carries oxygen through body

## 4. Arteries \_\_\_\_\_ (الشرايين)

- ☐ are narrow, blood cells flows in a single file
- ☐ have one-way valves that restrict backward flow
- ☐ increases surface area for gas and fluid exchange
- ☒ have thicker walls

✓ are under more pressure

✓ carry blood from heart to body organs & tissue

## 5. Veins \_\_\_\_\_ (الوريد)

- ☐ are narrow, blood cells flows in a single file
- ☐ composed of a single layer of epithelial cells
- ☒ have one-way valves that restrict backward flow
- ☐ have thicker walls





6. Capillaries \_\_\_\_\_ (الشعيرات الدموية)

ملخص

- ☐ force blood back to right heart atrium
- ☐ have thicker walls
- ☒ increases surface area for gas and fluid exchange
- ☐ are under more pressure

7. In the four-chambered hearts \_\_\_\_\_ (القلب الرباعي الفرف)

ملخص

- ☒ blood stays confined to vessels
- ☒ the left side of the heart pumps blood from lungs to body
- ☒ heart pumps blood through open-ended vessels
- ☒ there is no answer

8. In the four-chambered hearts \_\_\_\_\_

- ☒ heart pumps blood through open-ended vessels
- ☒ there is no answer
- ☒ there are two atria and two ventricles
- ☒ there are one atrium and one ventricle

9. The heart rate \_\_\_\_\_ (وعدد ضربان القلب)

- ☐ Prevent the backflow of blood
- ☐ is the amount of blood/minute pumped into systemic circuit
- ☒ defined as the number of beats/minute
- ☐ is a defect in one or more heart valves

10. The cardiac output \_\_\_\_\_ (المعدل القلبي)

- ☐ defined as the number of beats/minute
- ☐ is a defect in one or more heart valves
- ☒ is the amount of blood/minute pumped into systemic circuit
- ☐ prevent the backflow of blood



# 11. The heart valves \_\_\_\_\_ (الصمامات)

- ☐ is a defect in one or more heart valves
- ☐ define as the number of beats/minute
- ☐ is the amount of blood/minute pumped into systemic circuit
- ☒ prevent the backflow of blood

# 12. A heart attack is defined as \_\_\_\_\_ (الكتلة القلبية)

- ☐ The death of brain tissue from blocked arteries in the head
- ☐ the force blood exerts on vessel walls
- ☐ the development of plaques inside walls of blood vessels
- ☒ the damage to cardiac muscle typically from a blocked coronary artery

# 13. The stroke \_\_\_\_\_ (السكتة الدماغية)

- ☒ is the death of brain tissue from blocked arteries in the head
- ☐ is the damage to cardiac muscle
- ☐ is the plaque inside walls of blood vessels
- ☒ reduces the diastolic pressure

# 14. The heart murmur \_\_\_\_\_

- ☒ is a defect in one or more heart valves
- ☐ is the amount of blood/minute pumped into systemic circuit
- ☐ define as the number of beats/minute
- ☐ prevent the backflow of blood

# 15. Atherosclerosis \_\_\_\_\_ (تصلب الشرايين)

- ☐ is measured as diastolic pressure
- ☒ narrows the blood vessels
- ☐ is the force blood exerts on vessel walls
- ☐ is measured as systolic pressure





16. The pacemaker (SA node) المستقر (العقدة الجيبية الأذنية)

- ☐ relays electrical signals to the ventricles
- ☐ is the amount of blood/minute pumped into systemic circuit
- ☐ is the development of plaques inside walls of blood vessels
- ☒ generates electrical signals in atria
- ☒ sets the rate of heart contractions

17. The AV node العقدة الأذينية البطينية

- ☐ generates electrical signals in atria
- ☐ sets the rate of heart contractions
- ☐ is the amount of blood/minute pumped into systemic circuit
- ☒ relays electrical signals to the ventricles

18. The blood pressure (ضغط الدم)

- ☒ Highest in arteries and lowest in veins
- ☐ is the death of brain tissue from blocked arteries in the head
- ☐ is the damage to cardiac muscle
- ☐ is the block of coronary artery

19. The red blood cells (erythrocytes) (كراتان الدم الحمراء)

- ☒ transport O<sub>2</sub> bound to hemoglobin
- ☐ promote clotting
- ☐ fight infections
- ☐ fight cancer
- ☒ Transport carbon dioxide (CO<sub>2</sub>)

20. The white blood cells (leukocytes) (كراتان الدم البيضاء)

- ☒ function inside and outside the circulatory system
- ☐ are small fragments of cells
- ☐ transport CO<sub>2</sub>
- ☐ transport O<sub>2</sub> bound to hemoglobin
- ☒ fight cancer
- ☒ fight infections



21. The platelets \_\_\_\_\_

(الصفيحات الدموية)

✓ promote clotting

- ☐ fight infections
- ☐ fight cancer
- ☐ transport O<sub>2</sub> bound to hemoglobin
- ✓ ☒ are small fragments of cells

✓ الجلطة / قشر الدم

22. Some athletes artificially increase their red blood cell production by injecting \_\_\_\_\_

- ☐ fibrinogen
- ✓ ☒ erythropoietin
- ☐ immunoglobulins
- ☐ sodium ions

23. Plasma contains fibrinogen, which is converted into fibrin that help \_\_\_\_\_

- ☐ as pH buffering
- ✓ ☒ in blood clotting
- ☐ as solvent for carrying other substance
- ☐ in defense

24. The immunoglobulin are proteins that help the body in \_\_\_\_\_

- A) Osmotic balance
- B) PH buffering
- ✓ ☒ C) Defense
- D) blood pressure

الدفاع

25. If blood vessel is injured platelets help trigger the conversion of \_\_\_\_\_ to \_\_\_\_\_

- A) Plasminogen----plasmin
- B) Albumin----- aminoglobin
- ✓ ☒ C) Fibrinogen-----fibrin
- D) Immunoglobulin-----alphglobin

26. In birds, crocodiles, mammals have \_\_\_\_\_ hearts and two blood circuits that do not mix.

- A) 2-chambers
- ✓ ☒ B) 4-chambers
- C) 1-chambers
- D) 3- chambers

آخر جز 5 12 بر 9



1) The maintenance of steady internal conditions despite fluctuations in the external environment is called \_\_\_\_\_

- ☒ Homeostasis
- ☐ Osmoregulation
- ☐ Excretion
- ☐ all of the above

2) The maintenance of internal temperature within narrow limits is called \_\_\_\_\_

- ☐ Osmoregulation
- ☐ Homeostasis
- ☒ Thermoregulation
- ☐ Excretion

3) The control of the gain and loss of water and solutes is called \_\_\_\_\_

- ☐ All other answers are correct
- ☐ Thermoregulation
- ☒ Osmoregulation
- ☐ Homeostasis

4) the active regulation of osmotic pressure of an organism fluids is \_\_\_\_\_

- ☐ Homeostasis
- ☐ Thermoregulation
- ☒ Osmoregulation
- ☐ All other answers are correct

5) The disposal of nitrogen-containing wastes is called \_\_\_\_\_

- ☒ Excretion
- ☐ Osmoregulation
- ☐ Homeostasis
- ☐ Thermoregulation

6) \_\_\_\_\_ is the process by which waste products are eliminated from an organism

- ☒ Excretion
- ☐ Osmoregulation
- ☐ Homeostasis
- ☐ Thermoregulation

7) Animals that derive body heat mainly from their metabolism are called \_\_\_\_\_

- ☒ Endothermic
- ☐ Ectothermic
- ☐ Herbivorous
- ☐ Photosynthetic

8) Animals that absorb heat from their surroundings are called \_\_\_\_\_

- ☐ Herbivorous
- ☐ Herbivorous
- ☒ Ectothermic
- ☐ Photosynthetic



9) Ectothermic animals \_\_\_\_\_

- ☐ use water and atmospheric CO<sub>2</sub> to produce sugar
- ✓ ☒ absorb heat from their surroundings
- ☐ there is no answer
- ✗ ☐ are represented by birds and mammals

✓ Many fish, most amphibians, lizards,  
most invertebrates

10) Endothermic animals \_\_\_\_\_

- ✓ ☒ Derive body heat mainly from their metabolism
- ✗ ☐ are represented by worms and Molluscs
- ☐ absorb heat from their surroundings
- ✗ ☐ are represented by worms and molluscs

✓ birds and mammals and few reptiles

11) Animals exchange heat with the environment by \_\_\_\_\_

- ✓ ☒ Conduction
- ☐ Pollination
- ☐ Fertilization
- ☐ none of the above

✓ birds and mammals and few reptiles  
✓ Convection  
✓ Radiation  
✓ Evaporation

12) The adaptations that promote the process of thermoregulation include \_\_\_\_\_

- ✓ ☒ Behavioral responses
- ☐ Conduction
- ☐ Convection
- ☐ Radiation

ملخص

13) The freshwater fish \_\_\_\_\_

- ☐ Drink seawater
- ☐ Pump out excess salt
- ✓ ☒ Gain water by osmosis
- ☐ All other answers are correct

ملخص



14) In vertebrates the excretion is primarily carried out by \_\_\_\_\_

- ☒ Kidneys
 ☐ Lungs
 ☒ Skin
 ☐ Gills
 ☐ there is no answer

15) In mammals, the ureters drain urine into \_\_\_\_\_

- ☒ urinary bladder
 ☐ Renal artery and vein
 ☐ Inferior vena cava
 ☐ there is no answer

16) In mammals, the urine is expelled through \_\_\_\_\_

- ☒ Urethra
 ☐ Aorta
 ☐ Inferior vena cava
 ☐ Aorta and Inferior vena cava

17) The key excretory processes of the urinary system include \_\_\_\_\_

- ☒ Secretion
 ☐ Conduction
 ☐ Radiation
 ☐ Conduction AND Radiation
 ☒ Filtration
 ☒ Reabsorption
 ☒ Excretion

18) The kidney dialysis can be a lifesaver by \_\_\_\_\_

- ☒ Maintaining the solute concentration in the blood
 ☐ there is no answer
 ☒ Removing wastes from the blood
 ☐ Maintaining the toxic compounds in the blood
 ☒ Extracting a filtrate from the urine

19) The nitrogenous wastes are toxic breakdown products of \_\_\_\_\_

- ☐ Fats
 ☐ Inorganic compounds
 ☒ Protein
 ☒ Nucleic acids
 ☐ Fats AND Inorganic compounds

20) The animals dispose of nitrogenous wastes in the form of \_\_\_\_\_

- ☐ Sugar
 ☐ Nitrate
 ☒ Urea
 ☒ uric acid
 ☒ Ammonia (NH<sub>3</sub>)
 ☐ Nitrate AND Sugar



21) Ammonia (NH<sub>3</sub>) is \_\_\_\_\_

- ☐ Easier to store
- ☐ non Poisonous
- ☒ Easily disposed of by aquatic animals
- ☐ Less toxic

✓ Poisonous  
✓ Soluble in water

22) Urea Is \_\_\_\_\_

- ☐ Easily disposed of by aquatic animals
- ☐ Poisonous
- ☒ Less toxic
- ☐ Soluble in water

✓ Easier to store

23) The nitrogen-containing metabolic waste products in most aquatic animals is \_\_\_\_\_

- ☐ Carbonate
- ☐ Urea
- ☐ Uric acid
- ☒ Ammonia

24) \_\_\_\_\_ is the nitrogen-containing metabolic waste products in mammals, amphibians, sharks, and some bony fishes

- ☐ Carbonate
- ☒ Urea
- ☐ Uric acid
- ☐ Ammonia

25) The nitrogen-containing metabolic waste products in birds and many reptiles, insects, and Snails is \_\_\_\_\_

- ☒ Uric acid
- ☐ Urea
- ☐ Carbonate
- ☐ Ammonia

26) Excess of CO<sub>2</sub> or O<sub>2</sub> in the plant leaves exit through \_\_\_\_\_

- ☒ Stomata
- ☐ Phloem
- ☐ Cortex
- ☐ there is no answer

✓ penetrating the external cell on surfaces directly to the air



27) Secretion of water and its solutes by hydathodes found in the leaf's

epidermis of some plants is called \_\_\_\_\_

- ☒ Guttation
- ☐ Transpiration
- ☐ Photosynthesis
- ☐ there is no answer

28) The evaporation of water from the surface of leaves through stomata is called \_\_\_\_\_

- ☐ Photosynthesis
- ☒ Transpiration
- ☐ Respiration
- ☐ there is no answer

29) The halophytes excrete the excess salts outside their body by \_\_\_\_\_

- ☒ Special salt glands
- ☐ vascular bundles
- ☐ Stomata
- ☐ all of the above

30) In \_\_\_\_\_ the excess of amino acids are converted to ammonia and keto acids

- ☐ terrestrial plants
- ☒ aquatic plants
- ☐ prokaryotic
- ☐ All other answers are correct

31) \_\_\_\_\_ convert excess amino acids into uric acid and Keto acids.

- ☒ terrestrial plants
- ☐ aquatic plants
- ☐ prokaryotic
- ☐ All other answers are correct

32) The terrestrial plants convert excess amino acids into \_\_\_\_\_

- ☒ Uric acid and Keto acids
- ☐ ammonia and urea
- ☐ keto acids and urea
- ☐ ammonia and Keto acids

33) In aquatic plants the excess of amino acids are converted to \_\_\_\_\_

- ☒ Ammonia and keto acids
- ☐ uric acids and keto acids
- ☐ keto acids and urea
- ☐ ammonia and urea



- 34) Osmoregulation is the control of the \_\_\_\_\_ and \_\_\_\_\_ of water and solutes
- A) addition-subtraction  
☒ C) gain-loss  
 B) acids-bases  
 D) ions-cations
- 35) Mammals, birds, few reptiles are \_\_\_\_\_
- A) Ectothermic  
 B) mesothermic  
 B) exothermic  
☒ D) endothermic
- 36) Evaporating cooling of thermoregulation includes panting and \_\_\_\_\_
- A) breathing  
☒ C) sweating  
 B) urinating  
 D) defecating
- 37) \_\_\_\_\_ cooling of thermoregulation includes panting and sweating.
- A) Extensive  
 C) Transpirative  
 B) effective  
☒ D) Evaporative
- 38) Osmoconformers are animals having the same internal \_\_\_\_\_ concentration as seawater.
- A) blood  
☒ C) solute  
 B) basic  
 D) acid
- 39) Marine animals with a solute concentration equal to that of the surrounding seawater are \_\_\_\_\_
- A) osmoregulators.  
 C) osmoinformers.  
☒ B) osmoconformers.  
 D) hypertonic.
- 40) Many \_\_\_\_\_ invertebrates are osmoconformers.
- A) Terrestrial  
☒ B) marine  
 C) Desert  
 D) fresh water

(الأضدة)

بالقفوق والنجام



1) Sexual reproduction Involves \_\_\_\_\_

✓ inheritance of unique sets of genes  
from two parents

- ☐ Offspring are similar to one parent
- ☐ inheritance of unique sets of genes from one parent
- ☒ Offspring are similar to parents, but show variations in traits
- ☐ there is no answer

2) Asexual reproduction \_\_\_\_\_

- ☒ Very rapid reproduction
- ☐ One parent produces genetically different offspring
- ☐ All other answers are correct
- ☐ unique offspring

3) Asexual reproduction includes \_\_\_\_\_

- ☒ there is no answer
- ☒ Binary fission
- ☒ mitosis
- ☒ meiosis

✓ Budding

✓ Fragmentation

4) Offspring of asexual reproduction \_\_\_\_\_

- ☐ there is no answer
- ☐ are different from the original cell or organism
- ☐ Involves inheritance of all genes from two parents
- ☒ Involves inheritance of all genes from one parent

5) Prokaryotes are reproduced by \_\_\_\_\_

- ☒ mitosis
- ☒ meiosis
- ☒ asexually
- ☒ mitosis AND meiosis

✓ Binary fission

6) Prokaryotes are reproduced by \_\_\_\_\_

- ☒ Binary fission
- ☒ sexually
- ☒ asexually AND binary fission
- ☒ asexually



7) Binary fission

☒ Occurs in eukaryotic cells

☒ means dividing in half

☐ produces two different cells from one cell

☒ there is no answer

8) Fertilization is the union of

☐ All other answers are correct

☐ testis and ovary to form a sex organ

☐ sperm and egg to form a sex organ

☒ sperm and egg to form a diploid zygote

not haploid

9) In Sexual reproduction, sperm may be transferred to the female by

☒ Insects الحشرات

☒ External fertilization

☒ Internal fertilization

☒ All other answers are correct

☒ Wind الرياح

10) Human Male Reproductive anatomy has

☐ Ovaries contain follicles that Nurture eggs and Produce sex hormones

☐ The uterus opens into the vagina through the cervix

☒ Testes produce Sperm

☐ there is no answer

11) Human Female Reproductive anatomy has

☒ Oviducts convey eggs to the uterus where embryos develop

☐ Testes produce Sperm

☐ Epididymis stores sperm as they develop further

☒ All other answers are correct



12) The vagina \_\_\_\_\_✓ Forms the birth canal

- ☒ Receive the egg from the ovary  
☒ Is the site for egg fertilization  
☒ Receives the penis during sexual intercourse  
☒ Is for external fertilization

13) Both sexes in humans have \_\_\_\_\_
 ✓ Ducts for gamete transport  
 ✓ Structures for copulation

- ☐ Carpels كبريات  
☒ A set of gonads where gametes (sperms & ovum) are produced  
☐ Sepals سبلات  
☐ Sepals AND Carpels

14) Hermaphroditism (الخنثى) \_\_\_\_\_

- ☐ Two individuals with male and female reproductive systems  
☒ one individual with male and female  
☒ One parent produces genetically identical offspring  
☐ One individual with male reproductive system and the other with female reproductive systems

15) Which of the following statement is true?

- ☐ Spermatogenesis (the sperm formation) Occurs in Ovaries  
☐ there is no answer  
☒ Spermatogenesis (the sperm formation) Occurs in seminiferous tubules  
☐ Oogenesis (the egg formation) Occurs in testes

16) Menstrual Cycles Occur about every \_\_\_\_\_ days

- ☐ 29  
☒ 28  
☐ 21  
☐ there is no answer.





17) Sperm are adapted to reach and fertilize an egg via \_\_\_\_\_

- ☐ Less mitochondria provide ATP for tail movements
- ☐ Cubical shape moves more easily through fluids
- ☒ Many mitochondria provide ATP for tail movements
- ☐ Head contains a diploid nucleus



18) Cleavage \_\_\_\_\_

- ☐ there is no answer
- ☒ is a rapid series of cell divisions
- ☐ Embryo is getting <sup>not</sup> larger
- ☐ is a slow series of cell divisions



19) Gastrula produces \_\_\_\_\_

- ☐ a four-layered embryo
- ☒ a three-layered embryo
- ☐ a two-layered embryo
- ☐ a one-layered embryo

20) The endoderm layer inside the human embryo (gastrula) become \_\_\_\_\_

- A) Kidney
- B) Skin and nervous system
- C) Muscle and bones
- ☒ D) Digestive tract

21) The ectoderm layer outside the human embryo (gastrula) become \_\_\_\_\_

- A) Kidney
- ☒ B) Skin and nervous system
- C) Muscle and bones
- D) Digestive tract

22) The mesoderm layer in middle the human embryo (gastrula) become \_\_\_\_\_

- A) Kidney
- B) Skin and nervous system
- ☒ C) Muscle and bones
- D) Digestive tract

23) Which of the following is Contribute to semen production?

- ☒ A) Epididymis
- ☒ B) prostate
- ☒ C) bulbourethral
- D) All of above are correct



24) The uterus opens into the \_\_\_\_\_ through the \_\_\_\_\_

A) penis .....testis

B) ovary ..... oviduct

☒ C) Vagina ..... cervix

D) Follicles.....embryo

25) A women cervix opens to the \_\_\_\_\_, where embryo development

☒ A) Uterus الرحم

B) Vagina

C) Ovary

D) Oviduct

26) The female's \_\_\_\_\_, receives the penis during sexual intercourse and forms the birth canal.

A) Oviducts

☒ B) vagina

C) Ovary

D) uterus

27) Follicle stimulating hormone (FSH) stimulates the growth of \_\_\_\_\_

A) Interstitial follicles

☒ B) Ovarian follicles

C) The corpus leuteum follicles

D) Sperm cells

28) Leutenizing hormone (LH) stimulates \_\_\_\_\_

A) Interstitial follicles

B) Ovarian follicles

☒ C) Ovulation

D) Sperm cells

29) Estrogen and progesterone are produced by \_\_\_\_\_

A) anterior pituitary.

☒ B) corpus luteum

C) hypothalamus.

D) ovarian follicle

30) Meiosis of the ovum is completed after \_\_\_\_\_

A) Regeneration

☒ B) fertilization

C) Packing

D) manufacturing

31) Many aquatic invertebrates and most fishes and amphibians exhibit \_\_\_\_\_

A) Internal fertilization

☒ B) External fertilization

C) Copulation

D) regeneration



1) Pairs of autosomes

- ☐ different in Centromere position
- ☐ different in Centromere position AND have different size
- ☐ have different size
- ☒ matched in Length

✓ Have the same...  
✓ Matched in ...

2) Homologous chromosomes are

- ☐ different in Gene locations
- ☐ All other answers are correct
- ☒ matched in Centromere position
- ☐ different in Centromere position

✓ Have the same...  
✓ Matched in ...

3) Sex chromosomes are

- ☐ matched in Centromere position
- ☒ matched in Length
- ☐ different in Length
- ☐ there is no answer

✓ Different in ...

4) Eukaryotic Cell Division includes

- ☒ Binary fission
- ☒ meiosis
- ☒ budding
- ☐ there is no answer

✓ Mitosis  
✓ produces two identical cells from one cell

5) The sequence of Eukaryotic Cell Cycle is

- ☒ G<sub>1</sub>, S, M, and G<sub>2</sub>
- ☐ G<sub>1</sub>, S, G<sub>2</sub>, and M
- ☒ S, G<sub>1</sub>, G<sub>2</sub>, and M
- ☐ All other answers are correct

## 6) \_\_\_\_\_ is a part of Eukaryotic Cell Cycle

- ☒ G<sub>1</sub>
- ☒ G<sub>1</sub> AND G<sub>2</sub>

- ☒ M
- ☒ G<sub>2</sub>

المفروض  
كله صح

✓ G<sub>1</sub>  
✓ G<sub>2</sub>  
✓ S



7) \_\_\_\_\_ is a part of Eukaryotic Cell Cycle

☐ G<sub>1</sub>
☐ G<sub>2</sub>
☐ S

☒ All other answers are correct

8) The Interphase of Eukaryotic Cell Cycle includes \_\_\_\_\_ phases

☐ G<sub>2</sub>, S, and M ✗

☒ G<sub>1</sub>, S, and G<sub>2</sub>
☐ G<sub>1</sub>, and G<sub>2</sub>
☒ M, G<sub>1</sub>, and G<sub>2</sub>

9) G<sub>1</sub> \_\_\_\_\_

☒ first gap phase, growth and prepares for S-phase
☐ second gap phase, growth and preparation for division
☐ DNA synthesis phase, duplication of chromosomes, each becomes two sister chromatids
☐ All other answers are correct

10) G<sub>2</sub> \_\_\_\_\_

☐ first gap phase, growth and prepares for S-phase
☒ second gap phase, growth and preparation for division
☐ DNA synthesis phase, duplication of chromosomes, each becomes two sister chromatids
☐ All other answers are correct

11) S \_\_\_\_\_

☐ First gap phase, growth and prepares for S-phase
☐ There is no answer

☒ DNA synthesis phase, duplication of chromosomes, each becomes two sister chromatids
☐ second gap phase, growth and preparation for division

12) \_\_\_\_\_ is (are) first gap phase, growth and prepares for S-phase

☐ S

☐ there is no answer

☒ G<sub>1</sub>
☐ G<sub>2</sub>



19) The all Mitotic phases of Eukaryotic Cell Cycle are \_\_\_\_\_

- ☐ Prophase, Prometaphase, Metaphase, and Telophase
- ☐ Prophase, Prometaphase, Anaphase, and Telophase
- ☐ Prophase, Prometaphase, Metaphase, and Anaphase

✓ ☒ Prophase, Prometaphase, Metaphase, Anaphase, and Telophase

20) \_\_\_\_\_ is (are) Chromatin condenses and chromosomes become visible

- ☐ Anaphase
- ☒ Prophase
- ☐ Metaphase
- ☐ All other answers are correct

21) \_\_\_\_\_ is (are) Chromosomes align on cells midplane on top of each other

- ☐ Prophase
- ☒ Metaphase
- ☐ Telophase
- ☐ there is no answer

22) \_\_\_\_\_ is (are) Sister chromatids separate, move to opposite poles.

- ☒ Anaphase
- ☐ Prophase
- ☐ Metaphase
- ☐ All other answers are correct

23) \_\_\_\_\_ is (are) Sister chromatids separate, move to opposite poles.

- ☐ Prophase
- ☐ Metaphase
- ☒ Telophase
- ☐ there is no answer

24) \_\_\_\_\_ is (are) Chromosomes decondensed. Cytokinesis begins

- ☒ Telophase
- ☐ Metaphase
- ☐ Prophase
- ☐ All other answers are correct

25) Prophase \_\_\_\_\_

- ☐ Chromosomes decondensed. Cytokinesis begins
- ☐ Chromosomes align on cells midplane on top of each other.
- ☐ there is no answer

✓ Chromatin condenses and chromosomes become visible.



26) Metaphase

- ☒ Chromosomes decondensed. Cytokinesis begins
- ☒ Chromosomes align on cells midplane on top of each other.
- ☐ there is no answer
- ☒ Chromatin condenses and chromosomes become visible.

27) Anaphase

- ☒ Chromosomes decondensed. Cytokinesis begins
- ☒ Sister chromatids separate, move to opposite poles.
- ☒ Chromosomes align on cells midplane on top of each other.
- ☒ Chromatin condenses and chromosomes become visible.

28) Telophase

- ☒ Chromosomes decondensed. Cytokinesis begins
- ☒ Chromosomes align on cells midplane on top of each other.
- ☐ there is no answer
- ☒ Chromatin condenses and chromosomes become visible.

29) Cytoplasmic division

- ☒ is called Cytokinesis
- ☒ is called Cytosol
- ☒ is called Cytogenesis
- ☒ overlaps with Anaphase

☒ overlaps with telophase

30) Cytokinesis in animal cells

- ☐ A cell plate forms in the middle from vesicles
- ☐ Forms a cell plate
- ☒ forms a cleavage furrow
- ☐ All other answers are correct

☒ separates the contents into two cells





# احياء الدوري النهائي شابر ١١ ، شابر ١٢ جزء ١،٢ كا...

20 December 2017

20 December 2017

## 31) Cytokinesis in plant cells

- ☒ forms a cell plate AND separates the contents into two cells
- ☒ forms a cell plate
- ☒ separates the contents into two cells
- ☒ forms a cleavage furrow

## 32) Synapsis occurs during

- ☒ prophase of meiosis II AND mitosis
- ☒ meiosis I
- ☐ prophase of meiosis II
- ☐ mitosis

✓ prophase of meiosis I

## 33) Synapsis occurs during

- ☒ prophase of meiosis I AND meiosis I
- ☒ prophase of meiosis I
- ☒ metaphase of meiosis II
- ☒ meiosis I

## 34) Tetrads forms during

- ☒ mitosis
- ☒ meiosis I
- ☒ metaphase of meiosis I
- ☒ metaphase of meiosis I AND meiosis I

✓ prophase of meiosis I

## 35) Crossing over occurs during

- ☐ Metaphase of meiosis II
- ☒ Prophase of meiosis I
- ☒ meiosis II AND metaphase of meiosis II
- ☐ meiosis II

 ✓ meiosis I  
 ✓ metaphase of meiosis I

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جدة

الكلية الطبية

قسم دواء

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دكتور / شامو الشمراني

5



20 December 2017

20 December 2017

36) Sister chromatids separate during \_\_\_\_\_

- ☒ mitosis ☒ telophase  
☒ Anaphase ☒ meiosis I

✓ meiosis II

37) Sister chromatids separate during \_\_\_\_\_

- ☒ meiosis II ☒ Anaphase  
☒ mitosis ☒ All other answers are correct

38) homologous chromosomes separate during \_\_\_\_\_

- ☐ meiosis II ☒ Anaphase X  
☐ meiosis I AND Anaphase X ☒ meiosis I

mitosis

39) During meiosis I \_\_\_\_\_

- ☒ sister chromatids separate  
☒ diploid cell is produced

✓ homologous chromosomes separate  
✓ haploid cell is produced

- ☒ The chromosome number is reduced by half  $2n$  to  $1n$   
☐ All other answers are correct

40) During meiosis II \_\_\_\_\_

- ☐ The chromosome number is reduced by half  
☒ sister chromatids separate  
☐ All other answers are correct  
☐ homologous chromosomes separate

✓ chromosome number remains the same  
✓ haploid cell is produced

41) Meiosis \_\_\_\_\_

- ☒ has one interphase  
☒ has one cytokinesis  
☒ produces diploid cells  
☒ has two interphases



42) Meiosis

☒ has two divisions AND has one S phase الانقسام

☐ has two interphases

☒ has one S phase

☒ has two divisions

## 43) The genetic material is duplicated during \_\_\_\_\_ of the cell cycle.

A) Mitotic phase

☒ B) S-phase

C) G<sub>2</sub>

D) telophase

## 44) Replicate copies of each chromosome are called \_\_\_\_\_ and are joined by \_\_\_\_\_

A) homologous / centromere.

B) sister chromatids / kinetochore.

☒ C) sister chromatids / centromere.

D) sister chromatids / spindle

## 45) Condensed DNA and protein complex, make up \_\_\_\_\_

A) RNA

B) gene

☒ C) Chromosome

D) chromatin

46) When cell is not dividing, the genetic material is decondensed and is called \_\_\_\_\_

A) Lysosome

☒ B) chromatin

C) Chromosome

D) None of the above

الزفيرة



1) Haploid cells

- ☐ Have three homologous sets of chromosomes ( $3n$ )
- ☒ Are sex cells
- ☐ Have two homologous sets of chromosomes ( $2n$ )
- ☐ Are mainly somatic cells

✓ have one set of chromosomes ( $1n$ )

2) Diploid cells

- ☐ are sex cells
- ☒ have two homologous sets of chromosomes ( $2n$ )
- ☐ have one set of chromosomes ( $1n$ )
- ☐ have three homologous sets of chromosomes ( $3n$ )

✓ Are mainly somatic cells

3) Which of the following is true in mammals sex determination system?

- ☐ XY = female AND ZW = male
- ☒ XY = male
- ☐ XY = female
- ☐ ZW = male

✓ XX = female

4) Which of the following is true in grasshoppers sex determination system?

- ☐ XX = male
- ☒ XX = female
- ☐ ZW = male
- ☐ All other answers are correct

✓ XO = male

5) Which of the following is true in birds sex determination system?

- ☒ ZW = female
- ☐ XY = female
- ☐ ZW = male
- ☐ All other answers are correct

✓ ZZ = male

6) Which of the following is true in bees sex determination system?

- ☐ haploid = female
- ☐ Diploid = male AND haploid = female
- ☒ haploid = male
- ☐ Diploid = male

✓ Diploid = female



7) Copy of a gene is called \_\_\_\_\_

- ☐ Sister chromosomes AND Gametes      ☐ Sister chromosomes  
☐ Gametes      ☒ alleles

8) Which of the following is Homozygous?

- ☐ ab      ☒ Two identical alleles  
☐ Aa AND ab      ☐ Aa

✓ AA

✓ aa

9) Which of the following is Heterozygous?

- ☒ Aa      ☐ aa  
☐ AA AND aa      ☐ AA

✓ Two different alleles

✓ ab

10) Alleles that is expressed in the heterozygous \_\_\_\_\_

- ☒ Dominant allele      ☐ Recessive allele

11) Alleles that is not expressed in the heterozygous \_\_\_\_\_

- ☐ Dominant allele      ☒ Recessive allele

12) Open circle in human pedigree is symbol for \_\_\_\_\_

- ☐ affected female      ☒ normal female  
☐ normal male      ☐ affected male

13) Filled circle in human pedigree is symbol for \_\_\_\_\_

- ☒ affected female      ☐ normal female  
☐ normal male      ☐ affected male

14) Open square in human pedigree is symbol for \_\_\_\_\_

- ☐ affected female      ☐ normal female  
☒ normal male      ☐ affected male

15) Filled square in human pedigree is symbol for \_\_\_\_\_

- ☐ affected female      ☐ normal female  
☐ normal male      ☒ affected male



16) Normal female in genetic pedigree is represented by \_\_\_\_\_

- ☐ Filled square
- ☐ Filled circle
- ☐ there is no answer
- ☒ Open circle

17) Affected female in genetic pedigree is represented by \_\_\_\_\_

- ☐ Filled square
- ☒ Filled circle
- ☐ Open circle
- ☐ All other answers are correct

18) Normal male in genetic pedigree is represented by \_\_\_\_\_

- ☐ Filled square
- ☒ Open square
- ☐ Filled circle
- ☐ there is no answer

19) Affected male in genetic pedigree is represented by \_\_\_\_\_

- ☐ Open square
- ☒ Filled square
- ☐ Open circle
- ☐ Open circle AND Open square

20) In Mendel experiment, the heritable factors is now known as \_\_\_\_\_

- ☐ chromatids
- ☐ chromomers
- ☐ there is no answer
- ☒ genes

21) Which of the following statements are true \_\_\_\_\_

- ☐ Recessive allele appears in the F<sub>1</sub> generation
- ☐ Recessive and dominant allele disppear in the F<sub>2</sub> generation
- ☐ All other answers are correct

☒ dominant allele appears in the F<sub>2</sub> generation

✓ in the F<sub>1</sub> generation

- ☐ dominant allele appears
- ☐ Recessive allele disppear

✓ in the F<sub>2</sub> generation

- ☐ dominant and Recessive allele appear



22) Which of the following is an exception to Mendel's Laws?

- ☒ dominance
- ☒ Co-dominance
- ☒ recessiveness
- ☒ Segregation

- ✓ Incomplete dominance
- ✓ multiple alleles
- ✓ polygens
- ✓ polytropy

23) \_\_\_\_\_ is referred to as Heterozygote expresses phenotypes of both homozygotes.

- ☐ Pleiotropy
  - ☒ Co-dominance
  - ☐ Incomplete dominance
  - ☐ Multiple alleles
- there is no answer

24) \_\_\_\_\_ is referred to as Heterozygote has intermediate phenotype.

- ☐ there is no answer
- ☐ Codominance
- ☒ Incomplete dominance
- ☐ Pleiotropy

25) \_\_\_\_\_ is referred to as three or more alleles in a population for same locus.

- ☐ Incomplete dominance
- ☒ Multiple alleles
- ☐ Polygenes
- ☐ Pleiotropy

26) \_\_\_\_\_ is referred to as Multiple independent pairs of genes may have similar and additive effects on the phenotype

- ☒ Incomplete dominance
- ☐ Multiple alleles
- ☒ Polygenes
- ☐ Pleiotropy

27) \_\_\_\_\_ is referred to as the phenomenon of one gene mutation being responsible for or affecting more than one phenotypic characteristic.

- ☐ Incomplete dominance
- ☒ Multiple alleles
- ☐ Polygenes
- ☒ Pleiotropy



28) Codominance is referred to \_\_\_\_\_

☒ Heterozygote expresses phenotypes of both homozygotes

☐ there is no answer

☐ Heterozygote has intermediate phenotype

☐ Multiple independent pairs of genes may have similar and additive effects on phenotype

29) Incomplete dominance is referred to \_\_\_\_\_

☐ Heterozygote expresses phenotypes of both homozygotes

☐ there is no answer

☒ Heterozygote has intermediate phenotype

☐ Multiple independent pairs of genes may have similar and additive effects on the phenotype.

30) Polygenes is referred to \_\_\_\_\_

☐ Heterozygote expresses phenotypes of both homozygotes

☒ Multiple independent pairs of genes may have similar and additive effects on the phenotype.

☐ Three or more alleles in a population for the same locus.

☐ The phenomenon of one gene mutation being responsible for or affecting more than one phenotypic characteristic (= Single traits).

31) Multiple alleles is referred to \_\_\_\_\_

☒ Three or more alleles in a population for the same locus.

☐ The phenomenon of one gene mutation being responsible for or affecting more than one phenotypic characteristic.

☐ there is no answer

☐ Multiple independent pairs of genes may have similar and additive effects on the phenotype.

32) Pleiotropy is referred to \_\_\_\_\_

☒ All other answers are correct

☒ Multiple independent pairs of genes may have similar and additive effects on the phenotype.

☒ Three or more alleles in a population for the same locus.

☒ The phenomenon of one gene mutation being responsible for or affecting more than one phenotypic characteristic.

33) In mammals sex is determined by \_\_\_\_\_

☒ X-Y system

B) Z-W system

C) Number of chromosome

D) X-O system

34) In grasshopper and roaches sex is determined by \_\_\_\_\_

A) X-Y system

B) Z-W system

C) Number of chromosome

☒ X-O system

35) In birds and butterflies is determined by \_\_\_\_\_

A) X-Y system

☒ Z-W system

C) Number of chromosome

D) X-O system

36) In ants and bees sex is determined by \_\_\_\_\_

A) X-Y system

B) Z-W system

☒ Number of chromosome

D) X-O system

37) For each character, an organism inherits two, one from each parent.

☒ Alleles

B) genes

C) traits

D) DNA

38) A \_\_\_\_\_ gene may mask the expression of a \_\_\_\_\_ gene.

A) Recessive - dominant

B) sex - autosomal

☒ Dominant - recessive

D) sex - recessive



39) \_\_\_ carry two different alleles of a locus whereas, \_\_\_ carry identical alleles

A) Diplozygous--- heterozygous

☒ B) heterozygous ---homozygous

C) homologous---- homozygous

D) homozygous ---heterozygous

40) The Phenotypic ratio of F<sub>2</sub> generation in monohybrid cross is \_\_\_\_\_

☒ A) 3:1

B) 4:1

C) 1:2:1

D) none of the above

41) The genotypic ratio of F<sub>2</sub> generation in monohybrid cross is \_\_\_\_\_

A) 3:1

☒ B) 1:2:1

C) 2:3

D) all of the above

42) In mendels F<sub>2</sub> generation, one out of four plants had one white flowers because \_\_\_\_\_

A) The trait is sex -linked

☒ B) both patterns where heterozygous purple

C) One parent was homozygous recessive

D) both patterns where heterozygous white

الزينة

Membrane is made of \_\_\_\_\_

☒ Phospholipids and proteins and carbohydrate.

☐ phospholipids and proteins alone.

☐ proteins and carbohydrate alone.

☒ phospholipids alone.

2. Cell Membrane is made of \_\_\_\_\_

☒ Phospholipids and proteins

☐ Proteins alone

☐ phospholipids alone

☐ carbohydrates alone

3. The Cell Membranes are made of \_\_\_\_\_

☐ four layers of phospholipids

☐ one layer of phospholipids

☐ three layers of phospholipids

☒ two layers of phospholipids

4. The Tail of phospholipids is \_\_\_\_\_

☒ Hydrophilic

☒ Hydrophobic

☒ neutral

☒ amphipathic

5. The head of phospholipids is \_\_\_\_\_

☒ Hydrophilic

☐ Hydrophobic

☐ neutral

☐ amphipathic

6. Which of the following is a function of plasma Membrane?

☒ Transport

☐ Replication

☐ Translation

☐ Transcription





7. Plasma Membrane is \_\_\_\_\_

الفشاء البلازمي

✓ Selectively permeable

- ☒ Bind cells together
- ☐ non-permeable ✗
- ☐ extra-permeable ✗
- ☐ made of cellulose ✗

انتفاذية انتقائية

8. Nonpolar hydrophobic molecules \_\_\_\_\_

الجزيئات الغير قطبية

- ☐ need carrier to pass through the cell membrane
- ☐ do not pass through the cell membrane easily
- ☒ can pass through the cell membrane easily
- ☐ can pass through the cell membrane with difficulty

9. Polar hydrophilic molecules \_\_\_\_\_

الجزيئات القطبية

- ☐ do not need carrier to pass through the cell membrane
- ☒ do not pass through the cell membrane easily
- ☐ can pass through the cell membrane easily
- ☐ can pass through the cell membrane with difficulty

✓ ☐ can pass through the cell membrane easily

10. In a sugar solution, the sugar is considered to be \_\_\_\_\_

مذاب

Solute

مذاب السكر

the solvent

☐ the solution

particles

11. In a sugar solution, the water is considered to be \_\_\_\_\_
☐ Solute

الماء محلول السكر

the solvent

مذيب

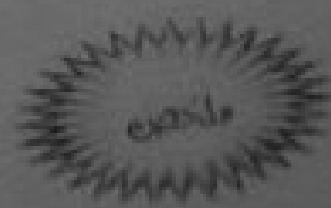
☐ the solution

particles

12. Passive transport across cell membranes \_\_\_\_\_

(النقل الغير منشط)

- ☐ Requires energy
- ☐ Goes from low concentration to high concentration
- ☐ Require ATP
- ☒ Does not require energy



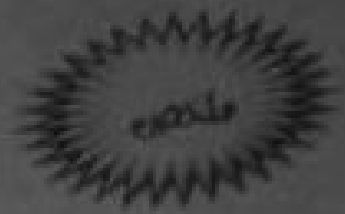
Active transport across cell membranes \_\_\_\_\_ (= Facilitated Active)

☒ Does not require ATP

☒ requires energy

☐ does not require energy

☐ goes from high concentration to low concentration



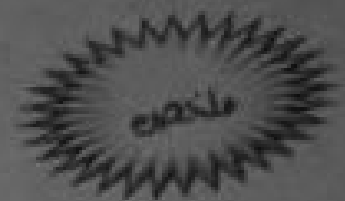
14. Facilitated Passive transport \_\_\_\_\_ (النقل الفعّال سلبي)

☒ Goes from high concentration to low concentration

☐ Requires ATP

☐ does not require carrier

☐ Requires energy



15. Diffusion of water across a membrane is known as \_\_\_\_\_

☒ Osmosis

☐ Phagocytosis

☐ Pinocytosis

☐ exocytosis

16. Osmosis is \_\_\_\_\_ (انتقال الماء)

☒ The diffusion of water across a membrane

☐ the diffusion of big stuff across a membrane

☐ the diffusion of suspended materials across a membrane

☐ The diffusion of solutes across a membrane

17. The processing of Moving Big Stuff outside the cell is called \_\_\_\_\_ (النقل خارج الخلية)

☒ Exocytosis

☐ Pinocytosis

☐ Endocytosis

☐ Receptor-mediated endocytosis

18. The processing of Moving Big stuff inside the cell is called \_\_\_\_\_ (النقل داخل الخلية)

☒ Endocytosis

☐ Exocytosis

☐ Phagocytosis

☐ Receptor-mediated



19. \_\_\_\_\_ indicates that the concentration of solute is higher outside

☒ Hypertonic

☐ Hypotonic

☐ Isotonic

☒ Hypertension

20. \_\_\_\_\_ indicates that the concentration of a solute is the same on both side

☒ Isotonic

☐ Hypertonic

☐ Hypotonic

☒ Hypertension

21. \_\_\_\_\_ indicates a higher concentration of solute inside the cell

☒ Hypotonic

☐ Isotonic

☐ Hypertension

☐ Hypertonic

22. Hypertonic \_\_\_\_\_

☒ indicates that the concentration of solute is higher outside the cell

☐ indicates that the concentration of a solute is the same on both sides

☐ indicates a higher concentration of solute inside the cell

☒ is not related to solute concentration

23. Isotonic \_\_\_\_\_

☒ Indicates that the concentration of a solute is the same on both sides

☐ Indicates that the concentration of solute is higher outside the cell

☒ Is not related to solute concentration

☐ Indicates a higher concentration of solute inside the cell

24. Hypotonic \_\_\_\_\_

☒ Indicates a higher concentration of solute inside the cell

☐ indicates that the concentration of solute is higher outside the cell

☒ is not related to solute concentration

☐ indicates that the concentration of a solute is the same on both sides

25. A plant cell in a hypotonic (or distilled water) solution will be \_\_\_\_\_

- ☒ Turgid
- ☐ Lysed
- ☐ Flaccid
- ☐ Shriveled (plasmolysed)

26. A plant cell in a hypertonic (or sea water) solution will be \_\_\_\_\_

- ☐ Turgid
- ☐ Lysed
- ☐ Flaccid
- ☒ Shriveled (plasmolysed)

27. Animal cell (or Red blood cell) placed in hypotonic solution (or distilled water) will \_\_\_\_\_

- ☐ Die
  - ☐ Lose water
  - ☐ Survive
  - ☒ Take on water
- ☒ Lysed  
☒ burst

28. Placing Animal cell (or Red Blood Cell) in hypertonic (or sea water) will cause the cell to \_\_\_\_\_

- ☒ Shrink (shriveled)
- ☐ Lysed
- ☐ burst
- ☐ none of the above

29. A plant cell immersed in an isotonic solution will become \_\_\_\_\_

- ☐ Turgid X
- ☒ flaccid
- ☐ lysed X
- ☒ normal

30. Animal cell if placed in \_\_\_\_\_ solution, will shriveled.

- ☒ Hypertonic
- ☐ Hypotonic
- ☐ Isotonic

31. Animal cell if placed in \_\_\_\_\_ solution, will lysed (burst).

- ☒ Hypertonic
- ☒ Hypotonic
- ☒ Isotonic
- ☒ Sea water

32. If an animal cell is immersed in a (an) \_\_\_\_\_ solution, the cell's volume remains as is

- ☒ Equilibrium
- ☐ hypertonic
- ☒ Hypotonic
- ☒ isotonic



Chemical reaction that releases energy is known as \_\_\_\_\_

- ☐ Endergonic Reaction
- ☐ anabolic Reaction
- ☒ Exergonic Reaction
- ☐ Endothermic Reaction

(مخرج طاقة)

40. ATP is

- ☒ Adenosine Triphosphate
- ☐ Composed of adenine alone
- ☐ Composed of adenine and ribose only
- ☐ Adenine and three phosphate.



41. \_\_\_\_\_ is the energy currency. ← (عملة الطاقة)

- ☒ ATP
- ☐ AMP
- ☐ FAD
- ☐ ADP

✓ Adenosine Triphosphate

42. Enzyme \_\_\_\_\_ (الإنزيم)

- ☒ is a protein
- ☐ is not specific for substrate
- ☐ is a lipid
- ☐ is a carbohydrate



43. Conditions at which Enzymes work best is called \_\_\_\_\_ conditions.

- ☒ Optimal ← يعمل عندها الإنزيم بكفاءة
- ☐ Optical
- ☐ Minimal
- ☐ All of the above

44. Heat will cause Enzymes \_\_\_\_\_ (الحرارة تسبب بغير تنزيم)

- ☒ Inactivation ← غير نشيط
- ☐ Renaturation ← إعادة الشكل
- ☐ Folding X
- ☐ Activation. ← نشيط

✓ Denaturation

(فقد الشكل)

Organic Enzyme Helper is called \_\_\_\_\_

☒ Co-Enzyme

(المساعد)

☐ Co-factor

☐ Enzyme Activator

☐ Co-Helper

46. Inorganic Enzyme Helper is called \_\_\_\_\_

☒ Co-factor

(المساعد)

☐ Co-Helper

☐ Co-Enzyme

☐ Enzyme activator

47. Many enzymes require non protein helper called \_\_\_\_\_

☐ Activator

(المساعد)

☒ Co-factor

☐ Inhibitors

☐ Co-modifier

✓ Co-enzyme

48. Competitive Enzyme Inhibitor \_\_\_\_\_

(المثبط التنافسي)

☐ Binds to a site other than the active site

☐ does not block substrates from entering the active site

☐ changes the active site shape

☒ block substrates from entering the active site



49. Noncompetitive Enzyme Inhibitor \_\_\_\_\_

(المثبط اللا تنافسي)

☐ does not change the enzyme shape

☐ acts directly with the active site

☒ change the shape of the enzyme

☐ binds to active site



50. Each enzyme has a particular target molecule called \_\_\_\_\_

a) Product

جزء من هدف

☒ b) Substrate

c) Inhibitor

d) Cofactor

51. Which of the following is a coenzyme?

a) zinc.

☒ b) vitamin B6.

c) iron.

d) Copper.

52. Which of the following substances could be a cofactor?

a) a protein.

b) a polypeptide.

☒ c) a zinc atom.

d) a ribosome



2017  
The exported materials in case of exocytosis, are packaged within a \_\_\_\_\_ that fuses with the membrane.

a) Sheath

b) Vacuole

c) Film

d) Vesicle

54. During phagocytosis, a cell engulfs a particle (food) by wrapping pseudopodia around it and packaging it within a sac called a \_\_\_\_\_

a) Membrane

b) vesicle

c) vacuole

d) lysosome

55. Which of the following (is/are) a type of endocytosis?

a) Pinocytosis

b) Phagocytosis

c) Diffusion

d) a and b are correct

56. There are \_\_\_\_\_ types of endocytosis.

a) 2

b) 3

c) 5

d) 4

57. A cell uses the process of exocytosis to export bulky (large) materials, such as \_\_\_\_\_

a) proteins

b) water

c) amino acid

d) fatty acids

✓ polysaccharides

58. The potential energy can be converted to \_\_\_\_\_

a) Potential

b) Kinetic

c) Static

d) stored

59. The use of exergonic processes to drive an endergonic one is called \_\_\_\_\_

a) Energy coupling

b) thermodynamics

c) Mechanical work

d) supporting work

60. Energy coupling is use of energy released from exergonic reactions to drive \_\_\_\_\_ reactions.

a) exogenic

b) potential

c) ectogenic

d) endergonic

61. Energy coupling is use of energy released from \_\_\_\_\_ reactions to drive endergonic reactions.

a) Exogenic

b) Exergonic

c) Ectogenic

d) endergonic

redox reaction involves the transfer of \_\_\_\_\_

☐ A hydrogen ion. ~~X~~

نقل

~~X~~ Oxygen.

☐ Water. ~~X~~

☒ An electron.

2) In oxidation - reduction reaction (redox), gain of electrons is \_\_\_\_\_

☐ Oxidation

~~X~~ Dehydration

الأكسدة

☒ Reduction

~~X~~ Hydrolysis

3) In oxidation - reduction reaction (redox), loss of electrons is \_\_\_\_\_

☒ Oxidation

~~X~~ Dehydration

الأكسدة

☐ Reduction

~~X~~ Hydrolysis

4) Chemical energy in organic compounds are stored in \_\_\_\_\_

☒ Chemical bonds

☐ Hydrophilic bonds

☐ Hydrostatic bonds

☐ Hydrophobic bonds

5) Our cells harvest chemical energy from our food by a process called \_\_\_\_\_

☒ Cellular respiration

من الطعام

~~X~~ Inspiration

~~X~~ Expiration

☐ Photosynthesis

6) During cellular respiration \_\_\_\_\_.

☐ Oxygen loses hydrogen atoms

☒ Glucose loses its hydrogen atoms

☐ Glucose gains hydrogen atoms

☐ Glucose is reduced



7) During cellular respiration, Glucose becomes \_\_\_\_\_.

☒ Carbon dioxide

☐ Oxygen

☐ ATP

☐ Carbon monoxide

8) During cellular respiration, Oxygen becomes \_\_\_\_\_

☐ Carbon dioxide

☒ Water

☐ ATP

☐ Carbon monoxide



the first stage of cellular respiration is \_\_\_\_\_

- ☒ Glycolysis
- ☐ Krebs cycle
- ☐ Oxidation phosphorylation
- ☐ the Electron Transport Chain

10) The second stage of a cellular respiration is \_\_\_\_\_

- ☐ Glycolysis
  - ☒ Krebs Cycle
  - ☐ Oxidation phosphorylation
  - ☐ The Electron Transport Chain
- ✓ Citric acid cycle

11) The third stage of a cellular respiration is \_\_\_\_\_

- ☐ Glycolysis
  - ☒ Oxidation phosphorylation
  - ☐ Krebs cycle
  - ☐ citric acid cycle
- ✓ The Electron Transport Chain

12) \_\_\_\_\_ occurs in the Cytoplasm ← السيتوبلازم

- ☒ Glycolysis
- ☐ the Electron Transport Chain
- ☒ Oxidation phosphorylation
- ☐ citric acid cycle

13) \_\_\_\_\_ occurs in the mitochondria matrix ← حجرة

- ☒ Glycolysis
  - ☐ Oxidation phosphorylation
  - ☒ Krebs Cycle
  - ☐ The Electron Transport Chain
- ✓ Citric acid cycle

14) \_\_\_\_\_ occurs in mitochondria inner membrane. ← الغشاء الداخلي

- ☐ Glycolysis
  - ☒ Oxidation phosphorylation
  - ☒ Krebs cycle
  - ☐ Citric acid cycle
- ✓ the Electron Transport Chain

15) Glycolysis occurs in the \_\_\_\_\_ (انقسام الجلوكوز)

- ☐ Mitochondria inner membrane
- ☐ Mitochondria matrix
- ☒ Cytoplasm
- ☐ Golgi apparatus

16) The citric acid cycle occurs in the \_\_\_\_\_ OR (Krebs cycle)

- ☐ Mitochondria inner membrane
- ☒ Mitochondria matrix
- ☐ Cytoplasm
- ☐ Golgi apparatus

The Electron Transport Chain occurs in the \_\_\_\_\_

- ☒ Mitochondria inner membrane      ☐ Mitochondria matrix  
☐ Cytoplasm      ☒ Golgi apparatus

18) During Glycolysis Glucose is converted to \_\_\_\_\_

- ☒ Two 3 carbon long molecules      ☒ One oxalate  
☐ Two oxalate      ☒ One Pyruvate

19) During Glycolysis Glucose is converted to \_\_\_\_\_

- ☒ One oxalate      ☒ One pyruvate  
☒ Two pyruvate      ☒ Carbon dioxide

20) During citric acid cycle pyruvate is converted to \_\_\_\_\_

- ☐ Carbon monoxide      ☐ One carbon monoxide  
☒ Three carbon dioxide      ☒ Two carbon dioxide

21) During citric acid cycle pyruvate is converted to \_\_\_\_\_

- ☐ Carbon monoxide      ☐ One carbon monoxide  
☐ Three carbon dioxide      ☒ Carbon dioxide

22) During Oxidative phosphorylation \_\_\_\_\_ (Electron Transport Chain)

- ☒ ATP is generated      ☒ NADH is oxidized  
☐ NAD is reduced      ☐ Glucose is reduced

✓ Oxygen is reduced

23) Final electrons acceptor in Cellular Respiration is \_\_\_\_\_

- ☒ Oxygen      ☐ NAD  
☐ ATP      ☐ Glucose

24) The enzyme that removes hydrogen from an organic molecule is called

- ☐ Deoxygenase      ☐ Oxygenase  
☒ Dehydrogenase      ☐ All of the above

25) Dehydrogenase uses \_\_\_\_\_ as coenzyme.

- ☒ NAD      ☐ iron  
☐ magnesium      ☐ Zinc



Fats undergo hydrolysis to \_\_\_\_\_ before used as fuel.

☒ Glycerol and fatty acids

☐ Glycerol alone ✗

☐ Glycerol and amino acids

☐ fatty acids alone ✗

27) Amino acids undergo \_\_\_\_\_ before used as fuel

☒ Dehydrogenation

☐ Amination

☒ Hydrogenation

☒ Deamination

28) \_\_\_\_\_ occurs in chloroplasts, and \_\_\_\_\_ occurs in mitochondria.

☒ a) Photosynthesis----- cellular respiration

b) Cellular respiration----- Photosynthesis

c) Cellular respiration-----atmosphere

d) Photosynthesis----- atmosphere

29) Cellular respiration uses \_\_\_\_\_ to harvest chemical energy (ATP) from food and produce \_\_\_\_\_

a) Carbon dioxide ----- oxygen

☒ b) Oxygen ----- carbon dioxide

☒ c) Oxygen -----carbon monoxide

d) Sun ray ----- oxygen

30) Breathing is necessary <sup>تبادل غازات</sup> for gas exchange of CO<sub>2</sub> produced during \_\_\_\_\_ with O<sub>2</sub> of the \_\_\_\_\_

a) Cellular respiration----- photosynthesis

b) Photosynthesis----- cellular respiration

☒ c) Cellular respiration-----atmosphere

d) Photosynthesis----- atmosphere

31) Respiration (breathing) \_\_\_\_\_ and cellular respiration \_\_\_\_\_

a) Produces ATP ... is gas exchange

☒ b) Is gas exchange ... produces ATP

c) Produces glucose ... produces oxygen

d) Uses glucose ... produces glucose

the overall equation for the cellular respiration of glucose is \_\_\_\_\_

- ☒ a)  $C_5H_{12}O_6 + 6 O_2 \rightarrow 5 CO_2 + 6 H_2O + \text{energy}$ .  
☒ b)  $5 CO_2 + 6 H_2O \rightarrow C_5H_{12}O_6 + 6 O_2 + \text{energy}$ .  
☒ c)  $C_6H_{12}O_6 + 6 O_2 \rightarrow 6 CO_2 + 6 H_2O + \text{energy}$ .  
☒ d)  $C_6H_{12}O_{12} + 3 O_2 \rightarrow 6 CO_2 + 6 H_2O + \text{energy}$ .

33) During cellular respiration \_\_\_\_\_ is oxidized and \_\_\_\_\_ is reduced

- ☒ a) Glucose .... oxygen  
☒ b)  $NAD^+$  ... glucose  
☐ c)  $NAD^+$  ..... glucose  
☐ d)  $ADP$  ...  $ATP$

34) During Oxidative phosphorylation \_\_\_\_\_ is oxidized and \_\_\_\_\_ is reduced.

- ☒ a)  $NADH$  ----- oxygen  
☐ c)  $FAD$  ----- glucose  
☐ d) Oxygen-----  $NADH$

35) Which of the following options lists the stages in cellular respiration in correct order?

- ☒ a) Glycolysis, the citric acid cycle, and oxidative phosphorylation  
☒ b) Glycolysis, oxidative phosphorylation, and the citric acid cycle  
☒ c) The citric acid cycle, oxidative phosphorylation, and glycolysis  
☒ d) Oxidative phosphorylation, glycolysis, and the citric acid cycle



## Photosynthesis

(خلل البصر)

Carbon dioxide is consumed

Oxygen is consumed

☒ Protein is produced

Carbon dioxide is released



2. Plant cells harvest energy from the sun by a process called \_\_\_\_\_

☒ Photosynthesis

☒ Expiration

Cellular respiration

☒ Photorespiration

3. Photosynthesis in plant occurs in \_\_\_\_\_

☒ inside the leaf

✓ mesophyll cells

the xylem

the stem

the roots

4. Organelle responsible for Photosynthesis is \_\_\_\_\_

Mitochondria

☒ Lysosom

☒ Chloroplasts

☒ Neucleus

5. Plants \_\_\_\_\_

☒ are autotrophic organisms

ذات التغذية ←

are hetertrophic organisms

are consumers

decomposer

✓ are producers

✓ photoautotrophic

ذات مختبري

6. Autotrophic organisms can \_\_\_\_\_ (Photoautotrophic organisms can \_\_\_\_\_)

☒ use energy to produce inorganic molecules

☒ use chemical energy to produce organic molecules

☒ make their own food without using organic molecules

☒ use glucose to make their food

✓ use the energy of light to produce organic molecules

are pores in the leaf that allow carbon dioxide to enter and oxygen to exit.

- Stomata (فتحات في الورقة) ☐ Stroma الحشوة  
☐ Nostrille ☒ Matrix

8. Stomata are pores in the leaf that allow \_\_\_\_\_

☒ Carbon dioxide to enter

☐ Oxygen to enter

☐ Nostrille X

☐ none of the above X

✓ Oxygen to exits

9. Stroma (الحشوة)

☒ has double membranes

☒ encloses dense fluid

☒ found in the mitochondria

☒ First and second choice

10. Pigment in chloroplasts, is responsible light absorbing is \_\_\_\_\_

☒ hemoglobin

☐ cynoglobin

thylakoid membranes

chlorophyll

11. Pigment that is responsible for green color is \_\_\_\_\_

☐ Hemoglobin

☐ Greenophyll

Cynoglobin

Chlorophyll

12. Pigment that is responsible for converting light energy to chemical energy is \_\_\_\_\_

☒ Chlorophyll

☐ Greenophyll

Cynoglobin

Hemoglobin

13. Pigment that is responsible for converting solar energy to chemical energy is \_\_\_\_\_

☒ Chlorophyll

☐ greenophyll

cynoglobin

hemoglobin



## Chlorophyll in plants

- ☒ Is concentrated in the epidermis
- ☐ Is responsible for converting chemical energy to light energy
- ☒ Is responsible for green color of plants
- ☐ Is concentrated in the phloem

## 15. Photosynthesis Reactions include تفاعلات البناء الضوئي

- ☒ Carbon fixation reaction
- ☒ Glycolysis reactions
- ☒ Cellular respiration reactions
- ☒ Three reactions

## 16. During photosynthesis light Reactions, تفاعل الضوء

- ☒ Light energy is converted to chemical energy and oxygen
- ☐ Light energy is converted to chemical energy and carbon dioxide
- ☐ ATP is consumed
- ☐ Carbon dioxide is converted to glucose

## 17. Photosynthesis dark Reactions, تفاعل الظلام

- ☒ Uses NADPH to fix carbon dioxide
- ☐ uses energy of ATP to fix carbon monoxide
- ☒ Uses NADP to fix carbon dioxide
- ☒ First and second choice

## 18. During Calvin cycle, دورة الكاليف

- ☐ Two CO<sub>2</sub> are fixed
- ☐ Glycerol leaves the cycle as a product
- ☒ Glyceraldehyde 3-phosphate (G3P) leaves the cycle as a product
- ☐ Two CO<sub>2</sub> are incorporated at a time

1. The correct scientific name of humans is \_\_\_\_\_

☒ Homo Sapiens

☒ homo sapiens

☒ Homo sapiens

☒ homo Sapiens

☒ Homo sapiens

2. The scientific name of an organism is formed of \_\_\_\_\_ الاسم العلمي يتكون من

☒ the genus and the species الجنس والنوع

☒ the species only النوع فقط

☒ the genus only الجنس فقط

☒ the family and the genus العائلة والجنس

3. Organisms are placed into categories on basis of the major categories arranged as? هذه الترتيب

☒ kingdom, phylum, domain, class, order, family, genus, species

☒ domain, kingdom, phylum, class, order, family, genus, species

☒ phylum, kingdom, class, order, genus, family, species, domain

☒ domain, phylum, class, order, family, kingdom, genus, species

4. Which of the following is a domain of life? عالم للحياة

☒ animal

☒ plant

☒ human

☒ Archaea

☒ Bacteria

☒ Eukarya

5. Which of the following is not domain of life? ليس عالم

☒ bacteria

☒ archaen

☒ eukarya

☒ fungi

6. The three main domains in life are \_\_\_\_\_

☒ Bacteria, algae, and fungi

☒ green plants, Archaea, and Eukarya

☒ Bacteria, Archaea, and Eukarya

☒ Bacteria, lichens, and Eukarya



Domain Eukarya includes

Archaea

Bacteria

Protists

Viruses

✓ Plants  
✓ Fungi  
✓ animal

8. \_\_\_\_\_ are kingdoms among the Eukarya.

Archaea

Bacteria

Protists

Viruses

✓ Plants  
✓ Fungi  
✓ animal

9. Prokaryotes (بدائيات الحياة)

Are kingdoms among the Eukarya x

Include fungi x

✓ Are Earth's predominant form of life

Include Plants x



10. Most prokaryote reproduce by (تكاثر بزمطي)

by binary fission (الانقسام الثنائي)

asexually ←

x sexually (جنسي)

A and B are correct.

11. Endospore (المجربوم الدخيم)

are very active

forms within fungi

x are not protective

✓ are protective ←

حماي



12. Many Prokaryotes play important roles in animal nutrition

x can digest protein (تفكيك)

x can synthesize RNA in human intestine

x can synthesize DNA in human intestine ← الأيمعاء

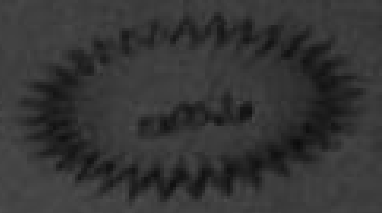
✓ can synthesize nutrients in human intestine (غذاء)

غذاء



13. Some bacteria are dangerous to human as \_\_\_\_\_ البكتريا الخطيرة

- ☒ botulinum that causes botulism
- ☐ produce vitamins x
- ☐ can digest cellulose x
- ☐ consume nutrients x



14.

15. Prokaryotic that live in extreme salt condition are known as \_\_\_\_\_

- ☒ Thermophile ☒ Neutripiles
- ☒ Basophiles ☒ Halophiles

16. \_\_\_\_\_ are prokaryotic organisms that live in hot springs at temperature up to 110 c

- ☒ Halophiles ☒ Thermophiles
- ☒ Neutrophiles ☒ Acidophiles

17. Heat - loving archaea is called \_\_\_\_\_

- ☒ Halopiles ☒ Thermophiles
- ☒ Neutrophiles ☒ Acidophiles

18. Salt - loving archaea is called \_\_\_\_\_

- ☒ Halophiles ☒ Thermophiles
- ☒ Neutrophiles ☒ Acidophiles

19. Protists are \_\_\_\_\_ (الذريات)

- ☒ eukaryotes that are animals x
- ☒ eukaryotes that are not animals
- ☒ eukaryotes that are plants x
- ☒ eukaryotes that are fungi x

- ☒ eukaryotes that are not fungi
- ☒ eukaryotes that are not plants



25. Fungi have distinctive adaptation such as \_\_\_\_\_

- ☒ not digest both lignin and cellulose
- ☒ photosynthesis
- ☒ not cause plant diseases
- ☒ feeding on dead organisms

26. Animals have many characteres as they \_\_\_\_\_

- ☒ have cells with cell wall
- ☒ reproduce asexually
- ☒ are multicellular
- ☒ do not react to external stimuli

27. Chordates have many features of these are \_\_\_\_\_

- ☒ pharyngeal gill slits
- ☒ adults emerge from the pupa
- ☒ have an exoskeleton
- ☒ reproduce by budding

28. Sponges \_\_\_\_\_

- ☒ are colonies of multi-celled organisms.
- ☒ have a complicated body plan
- ☒ have sexual Reproduction (only)
- ☒ lack tissues

29. Amphibians possess many features such as: \_\_\_\_\_

- ☒ They have a four-chambered heart
- ☒ Lungs are powerful, developed
- ☒ They reproduce in water
- ☒ They live in land

30. Arthropods include

☐ Mammals.

☒ Arachnids. ←

☐ Reptiles.

☐ Sponges.

(مفصليات الأرجل)

الحشرات الطائفة ✓ Insects.

القشريات ✓ Crustaceans

31. Mammals

(الثدييات)

☒ in most of them, fur protects and insulates the warm body

☒ in most of them, scales protects and insulates the warm body

☒ are divided into two groups: monotremes, and marsupials

☒ are divided into two groups: monotremes, and placentals



32. Which of the following animals not mammals? ← ليس من الثدييات

☒ Lizard ← الزحالي

☐ man

☐ Bat

☐ whale

33. The first part in binomial name is

A) Species

☒ B) genus

C) order

D) Class

34. The second part of the binomial name is

☒ A) species.

B) genus.

C) order.

D) Class.

35. Pathogenic bacteria <sup>تفدنه</sup> secrete \_\_\_\_\_ that cause disease to human.

☒ A) Toxins ← السموم

B) Hormones

C) Enzymes

D) Carbohydrates

36. \_\_\_\_\_ is the use of prokaryotes and other organism's metabolism to remove pollutants. ← سبيل المدونات

A) Nitrogen fixation

B) Decomposition

☒ C) bioremediation

D) bio-composting

معالجة حيوية



The bacterium that cause anthrax can be used as \_\_\_\_\_

A) Industrial bacteria

C) vitamin producer

B) antibiotic producer

✓ D) Biological weapon ← 26 صوي

38. Which of the following is seedless vascular plant?

✓ A) club mosses.

C) hornworts.

B) foraminiferans.

D) slime molds.

✓ Ferns

✓ horse tail

39. The seedless vascular plants propagate by \_\_\_\_\_

✓ A) spores.

C) budding

B) seeds.

D) binary fission.

40. The arachnids include \_\_\_\_\_

(A) Spiders

(B) Ticks

(C) Scorpions

✓ (D) all of the above

✓ Mites

41. \_\_\_\_\_ are the only flying invertebrates.

A) arachnids

B) crustaceans

✓ C) insects

D) birds

42. Reptiles include \_\_\_\_\_

(A) Lizards

(B) Snakes

(C) turtles

✓ (D) All of the above

✓ Alligators

✓ crocodiles

43. Which of the following organisms is a marsupial?

A) echidna

✓ B) kangaroo (walabye)

C) whale

D) monkey

44. In many marsupial species, post birth development takes place in a \_\_\_\_\_

A) Uterus

B) Bladder

C) Internal sac

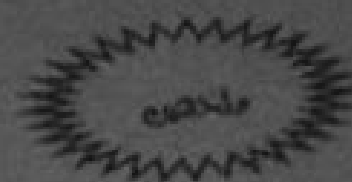
✓ D) Protective pouch

كيس حامي

آخر متبنة ⑤

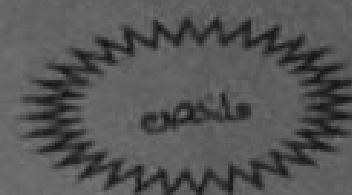
## Nutrition (التغذية)

- Includes nutrients interaction
- Is breaking down of foods into smaller pieces
- Is hydrolysis of large organic molecules into their components
- Is enzymatic breaks down of large organic molecules into their components



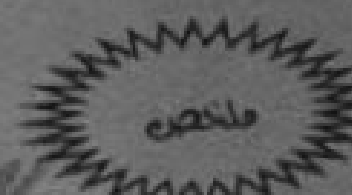
2. Substances that we must have in our diets in order for our cells to function properly include

- Carbon dioxide
- Carbohydrates
- Carbon monoxide
- Aflatoxins



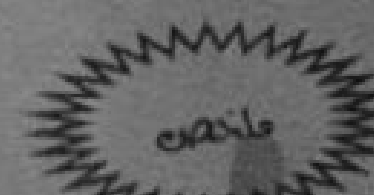
### 3. HDL cholesterol

- Its level increases by exercise
- Contributes to higher blood pressure
- Contributes to blocked blood vessels
- Is harmful to our bodies



### 4. LDL cholesterol

- Tends to reduce blocked blood vessels
- Its level increases by exercise
- its level decreases by smoking
- contributes to blocked blood vessels



5. \_\_\_\_\_ is (are) member(s) of kinds of diets ← أنواع الغذاء

- Hydrolysis
- disaccharide
- Cellulose
- Carnivores

- ✓ Herbivores
- ✓ Omnivores

6. Herbivores ← آكلة الأعشاب

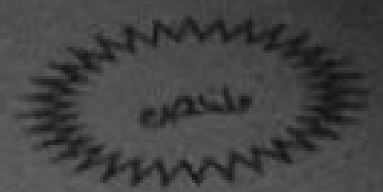
- one Example of them is roaches
- one Example of them is hawk
- one Example of them is spider
- one Example of them is snail

- ✓ plant-eaters
- ✓ cattle
- ✓ sea urchins



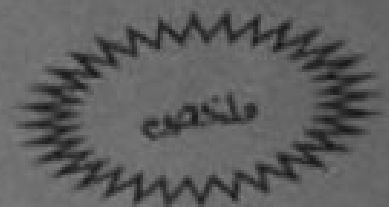
7. Carnivores آكل اللحم

- ☐ One Example of them is snail
- ☐ One Example of them is cattle
- ☐ Are plant-eaters
- ☒ One Example of them is spider



8. Omnivores آكل كل من النبات والحيوان

- ☐ One Example of them is hawk
- ☒ Eat both plants and other animals
- ☐ Are meat-eaters
- ☐ One Example of them is spider



9. The first stage of food processing is \_\_\_\_\_

- ☐ Digestion عمليات الهضم
- ☐ Elimination
- ☐ Ingestion
- ☐ Absorption

10. The second stage of food processing is \_\_\_\_\_

- ☐ Digestion
- ☐ Elimination
- ☐ Ingestion
- ☐ Absorption

11. The third stage of food processing is \_\_\_\_\_

- ☒ Absorption
- ☐ Ingestion
- ☐ Digestion
- ☐ Elimination

12. The fourth stage of food processing is \_\_\_\_\_

- ☐ Absorption
- ☐ Ingestion
- ☐ Digestion
- ☐ Elimination

13. The Ingestion is the \_\_\_\_\_ stage of food processing.

- ☐ second
- ☐ third
- ☐ fourth
- ☒ First



14. The Digestion is the \_\_\_\_\_ stage of food processing.

☒ second

☐ third

☐ fourth

☐ First

15. The absorption <sup>الامتصاص</sup> is the \_\_\_\_\_ stage of food processing.

☐ second

☒ third

☐ fourth

☐ First

16. The Elimination <sup>الإخراج</sup> is the \_\_\_\_\_ stage of food processing.

☐ second

☐ third

☒ fourth

☐ First

17. A tube worms <sup>الديدان الأنبوبية</sup> obtain and ingest their food by \_\_\_\_\_

☐ Bulk feeding

☐ Substrate feeding

☐ Fluid feeding

☐ Suspension feeding

18. A caterpillars <sup>اليرقة القارضة</sup> obtain and ingest their food by \_\_\_\_\_

☐ Suspension feeding

☐ Bulk feeding

☐ Fluid feeding

☐ Substrate feeding

19. Mosquitos <sup>المفصليات</sup> obtain and ingest their food by \_\_\_\_\_

☐ Suspension feeding

☐ Bulk feeding

☒ Fluid feeding

☐ Substrate feeding

20. Grey heron <sup>الطيور</sup> obtain and ingest their food by \_\_\_\_\_

☐ Suspension feeding

☐ Bulk feeding

☐ Fluid feeding

☐ Substrate feeding

1. A \_\_\_\_\_ obtain and ingest their food by Suspension feeding

☐ grey heron

☐ mosquito

☐ caterpillar

☒ tube worms



22. A \_\_\_\_\_ obtain and ingest their food by Substrate feeding

- ☐ tube worm
- ☐ mosquitos

- ☒ caterpillar
- ☐ grey heron

23. A \_\_\_\_\_ obtain and ingest their food by Fluid feeding

- ☐ tube worm
- ☒ mosquitos

- ☐ caterpillar
- ☐ grey heron

24. A \_\_\_\_\_ obtain and ingest their food by Bulk feeding

- ☐ mosquito
- ☒ grey herons

- ☐ caterpillar
- ☐ tube worm

25. The chewing and mixing of food occurs in the \_\_\_\_\_

- ☐ Esophagus
- ☐ Large intestine

- ☒ Mouth and stomach
- ☐ Small intestine

26. The Polysaccharides is broken down by \_\_\_\_\_ digesting enzymes into \_\_\_\_\_

- ☐ Glycerol and Fatty acids
- ☐ Amino acids

- ☒ Monosaccharides
- ☐ Nucleotides

27. The Disaccharide is broken down by \_\_\_\_\_ digesting enzymes into \_\_\_\_\_

- ☐ Glycerol and Fatty acids
- ☐ Amino acids

- ☒ Monosaccharides
- ☐ Nucleotides

28. The protein is broken down by \_\_\_\_\_ digesting enzymes into \_\_\_\_\_

- ☐ Glycerol and Fatty acids
- ☒ Amino acids

- ☐ Monosaccharides
- ☐ Nucleotides

29. The Nucleic acids is broken down by \_\_\_\_\_ digesting enzymes into \_\_\_\_\_

- ☐ Glycerol and Fatty acids
- ☐ Amino acids

- ☐ Monosaccharides
- ☒ Nucleotides

20. The Fat is broken down by protein digesting enzymes into \_\_\_\_\_

☒ Glycerol and Fatty acids

☐ Amino acids

☐ Monosaccharides

☐ Nucleotides

31. The \_\_\_\_\_ is broken down by enzymes into Monosaccharides

☐ Nucleic acid

☐ protein

☒ Disaccharide

☐ Fat

32. The \_\_\_\_\_ is broken down by enzymes into Monosaccharides.

☐ Nucleic acid

☐ protein

☒ Polysaccharide

☐ Fat

33. The \_\_\_\_\_ is broken down by enzymes into Amino acids.

☐ Nucleic acid

☒ protein

☐ Disaccharide

☐ Fat

34. The \_\_\_\_\_ is broken down by enzymes into Nucleotides

☒ Nucleic acid

☐ protein

☐ Disaccharide

☐ Fat

35. The \_\_\_\_\_ is broken down by enzymes into Glycerol and Fatty acids.

☐ Nucleic acid

☐ protein

☐ Disaccharide

☒ Fat

37. The function of الغدة اللعابية salivary glands is the production of \_\_\_\_\_

☒ Salivary amylase

☐ Trypsin

☐ Lipases

☐ Pancreatic amylase

38. The enzyme present in saliva and acts on \_\_\_\_\_

☐ minerals

☐ fats

☒ polysaccharides (starch)

☐ fats and proteins



39. Salivary amylase begins the hydrolysis of \_\_\_\_\_

(A) Starch

(B) Protein

(C) Fats

(D) Carbohydrates

40. The function of <sup>البنكرياس</sup>pancreas is the production of \_\_\_\_\_

(A) Nucleases

(B) bile and bile salts

(C) salivary amylase

(D) Pepsin

41. Which of the followings is a function of the liver? <sup>الكبد</sup>

(A) Get rid of toxins

(B) Produce trypsin

(C) Salivary amylase

(D) Produce chymotrypsin

42. The <sup>مضغ</sup>\_\_\_\_\_ tastes, shapes the bolus of food, and moves it toward pharynx.

(A) Gland duct

(B) Salivary glands

(C) Teeth

(D) Tongue

43. The \_\_\_\_\_ serves to transport food from mouth to stomach.

(A) small intestine

(B) Esophagus

(C) pyloric sphincter

(D) appendix

44. \_\_\_\_\_ <sup>صمامات</sup>act as valves to regulate passage of food into and out of digestive chambers ← <sup>الفجوة</sup>

(A) appendix

(B) small intestine

(C) Sphincters

(D) pyloric sphincter

45. The \_\_\_\_\_ sphincter limits the upward movement (reflux) of acids into esophagus

(A) voluntary

(B) cardiac

(C) strong

(D) pyloric

regulates the passage of food from stomach to the small intestine

pyloric sphincter

esophagus

small intestine

stomach

47. The parietal cells in the \_\_\_\_\_ produce Acid HCl PH 2

Sphincters

Stomach

small intestine

esophagus

48. The chief cells in the \_\_\_\_\_ produce Pepsinogen (inactive).

Sphincters

Stomach

small intestine

esophagus

49. The \_\_\_\_\_ is the major organ of chemical digestion and nutrient absorption والمعدة

pyloric sphincter

Sphincters

stomach

small intestine

50. \_\_\_\_\_ reclaims water and compacts feces تعيد الماء ويضغط الفضلات

esophagus

large intestine

appendix

small intestine

✓ Colon

51. \_\_\_\_\_ bacteria produce vitamins (biotin, vitamin K & B vitamins)

esophagus

Colon

appendix

small intestine

52. The \_\_\_\_\_ makes a minor contribution to immunity. ساهم قليلا في المناعة

esophagus

stomach

appendix

small intestine

53. Which of these is a fat-soluble vitamin?

A) Vitamin B6

C) biotin

✓ B) vitamin k

D) Vitamin B12

A D E K  
= = = =



54. Which of these is water-soluble vitamin?

A) Vitamin A

B) vitamin k

C) Vitamin D

☒ D) Vitamin B12 (or Vitamin C)

55. Excess water-soluble vitamins can be eliminated in \_\_\_\_\_

A) sweating

☒ B) urine البولي

C) respiration

D) feces

56. Excess \_\_\_\_\_ vitamins accumulate to dangerous levels in body fat

A) water-soluble

B) acetone-soluble

☒ C) fat-soluble

D) hydroxide-soluble

57. \_\_\_\_\_ digestion is first phase of digestion and means breakdown food particles into smaller pieces

☒ A) Mechanical ميكانيكي

B) Substrate

C) Chemical

D) Diffusion

58. \_\_\_\_\_ digestion is second phase of of digestion and involves process called hydrolysis ← تحليل

A) Mechanical

B) Substrate

☒ C) Chemical

D) Diffusion

59. Mechanical and chemical digestion begins in the \_\_\_\_\_

A) tongue

B) pharynx

☒ C) oral cavity = mouth

D) esophagus

60. Pepsin begins the chemical digestion of \_\_\_\_\_

A) starch

B) lipids

☒ C) proteins

D) nucleic acid

61. In stomach pepsinogen and HCl produce \_\_\_\_\_

A) Basic solution

☒ B) Pepsin

C) Amylase

D) Alkanase

62. The bile salts that are made in liver emulsify \_\_\_\_\_ to yield fat droplets.

A) Protein

☒ B) fat ← دهون

C) Carbohydrates

D) cellulose

\_\_\_\_\_ is example of organic molecule produced by plants

☐ phosphorus

☐ Carbon dioxide

☒ lipids

☐ Nitrogen

2. The inorganic molecule taken up by plants include \_\_\_\_\_

☒ Carbon dioxide

☐ carbohydrates

☐ lipids

☐ Nucleic acids

3. The macronutrients are \_\_\_\_\_

☐ elements that make up 2% of plant dry weight

☐ elements that required in relatively small amounts by plants

☒ elements that make up 98% of plant dry weight

☐ often act as cofactors

4. The micronutrients are \_\_\_\_\_

☐ Elements that make up 98% of plant dry weight

☐ Elements that required in relatively large amounts by plants

☐ components of organic molecules

☒ elements that required in relatively small amounts by plants

5. The conversion of N<sub>2</sub> to ammonia is called \_\_\_\_\_

☐ ammonification

☒ nitrification

☐ Carboxylation

☒ nitrogen fixation

6. The conversion of organic matter into ammonium is called \_\_\_\_\_

☐ nitrogen fixation

☐ nitrification

☐ Carboxylation

☒ ammonification

7. The conversion of ammonium into nitrates is called \_\_\_\_\_

☐ ammonification

☒ nitrification

☐ Carboxylation

☐ nitrogen fixation



Nitrogen fixation is the conversion of \_\_\_\_\_

- ☒ N<sub>2</sub> to ammonia
- ☐ organic matter into nitrates
- ☐ organic matter into ammonium
- ☐ ammonium to nitrates

9. Ammonification is the conversion of \_\_\_\_\_

- ☐ N<sub>2</sub> to ammonia
- ☐ organic matter into nitrates
- ☒ organic matter into ammonium
- ☐ ammonium to nitrates

10. Nitrification is the conversion of \_\_\_\_\_

- ☐ N<sub>2</sub> to ammonia
- ☐ organic matter into nitrates
- ☐ organic matter into ammonium
- ☒ ammonium to nitrates

11. Epiphytes النباتات العالقة

- ☐ Grow in soil
- ☒ grow anchored on other plants
- ☐ absorb organic molecules from other plant
- ☐ Trap and digest small animals

12. Parasites النباتات المتطفلة

- ☐ found in nutrient poor environments
- ☒ absorb organic molecules from host plant
- ☐ absorb inorganic elements from prey
- ☐ grow anchored on other plants

13. Carnivorous plants النباتات آكل الحشرات

- ☒ Trap and digest small animals such as insects
- ☐ Grow anchored on other plants
- ☐ Roots tap into the host plants vascular system
- ☐ Absorb organic molecules from host plant



Parasites are incapable of photosynthesis therefore absorb \_\_\_\_\_  
molecules from host plant.

- ☐ Soluble من المحال ☐ Inorganic  
☒ Organic ☐ Macromolecules

15. In intracellular route الطريق داخل خلوي

- ☒ Water and solutes are selectively taken up by a root epidermal cell, usually a root hair  
☒ Water and solutes do not enter any cell plasma membrane until they reach root endodermis  
☒ The Casparian strip regulates uptake of minerals that enter the root  
☒ water and solutes pass into the root in the porous cell walls of root cells

16. In the extracellular route الطريق خارج خلوي

- ☒ water and solutes are selectively taken up by a root epidermal cell, usually a root hair  
☒ water and solutes pass into the root in the porous cell walls of root cells  
☒ Casparian strip plays no role in uptake of water  
☒ water transported from cell to cell through plasmodesmata

17. A sugar source is a plant organ that \_\_\_\_\_

- ☒ is a net producer of sugar via photosynthesis  
☐ store the starch  
☐ store glucose  
☐ is a net consumer of sugar

✓ breakdown the starch

18. A sugar sink is a plant organ that \_\_\_\_\_

- ☒ is a net consumer of sugar  
☐ breakdown glycogen  
☐ is a net producer of sugar via photosynthesis

✓ store the starch

19. The A horizon soil is \_\_\_\_\_

- ☒ layer contains humus (decayed organic matter)  
☐ layer contains dissolved elements  
☐ layer contains clay  
☐ layer contains rocks



The B horizon soil is \_\_\_\_\_

- ☐ topsoil subject to weathering
- ☒ layer contains dissolved elements
- ☐ layer contains humus (decayed organic matter)
- ☐ layer contains many soil organisms



21. The C horizon soil is \_\_\_\_\_

- ☐ topsoil subject to weathering
- ☒ layer contains rocks
- ☐ layer contains clay
- ☐ layer contains many soil organisms

22. Stomata open \_\_\_\_\_ فتح المنفذ

- ☒ when guard cells take up water
- ☐ when potassium levels fall.
- ☐ as a result of a rise in CO<sub>2</sub> ✗
- ☒ at night time



23. Stomata close \_\_\_\_\_ غلق المنفذ

- ☒ when potassium levels fall.
- ☐ as a result of a rise in potassium
- ☐ at day time
- ☐ when guard cells take up water



24. Plants can only absorb nitrogen as ammonium or nitrates from the soil, من الذب  
they cannot absorb it from \_\_\_\_\_

- A) Solutes
- ☒ B) Air
- C) Concentrate
- D) Water

25. Plant can only absorb nitrogen in the form of \_\_\_\_\_

- ☒ A) Ammonium
- ☒ B) Nitrates
- C) Nitrogen gas
- ☒ D) A and b are correct.

Soil \_\_\_\_\_ can convert nitrogen gas from the air into a form usable by plants via several processes.

A) Macroorganisms

B) Fungi

C) Amoebae

☒ D) Bacteria

27. Parasites send their roots to tap the vascular system of \_\_\_\_\_ plants.

A) Adjacent

B) alternate

☒ C) Host

D) small

28. Parasites their roots tap the \_\_\_\_\_ system of host plants.

A) cambium

B) xylem

☒ C) vascular

D) phloem

29. Carnivores plants absorb inorganic element from \_\_\_\_\_ and they are abundant in nutrient-poor environment.

A) Arthropods

B) host

C) Parasite

☒ D) Prey

30. \_\_\_\_\_ plants trap and digest small animals such as insects.

A) Parasite

☒ B) Carnivores

C) Epiphytes

D) Predators

31. Plant parasites are incapable of \_\_\_\_\_ Therefore absorb organic molecules from host plants.

A) Breathing.

☒ B) Photosynthesis.

C) Absorbing water.

D) Cellular respiration.

32. Casparian strip regulates uptake of \_\_\_\_\_ that enter the root via extracellular route.

A) water

☒ B) minerals

C) acids

D) bases

33. The plant cells of endodermis contain a waxy barrier called the \_\_\_\_\_ strip.

A) Soluble

B) permeable

☒ C) Casparian

D) Tough



The plant cells of \_\_\_\_ contain a waxy barrier called Casparian strip.

✓ A) Endodermis

B) Epidermis

C) Hypodermis

D) Outer wall

35. The plant cells of Endodermis contain a waxy \_\_\_\_\_ called casparian strip.  
صَيِّمَ الدَّخْلِيمِ لِلْجُذُورِ حَاجِزٌ شَبِيهُ شَرِيْطٍ تَاسِيْدٍ

A) polymer

✓ B) barrier

C) monomer

D) solution

36. Roots and other \_\_\_\_\_ organs in plants produces sugar via breakdown of starch  
الْأَوْصَانُ الدَّاخِلِيَّةُ لِتَحْزِيْنِ

A) Transporting

B) functional

C) Respiratory

✓ D) storage

37. Sugar source Roots and other storage organs produce sugar via \_\_\_\_\_ of starch.  
مَصْدَرُ السُّكَّرِ

A) Transporting

B) storage

✓ C) Breakdown تَحْكِيرٍ

D) photosynthesizing

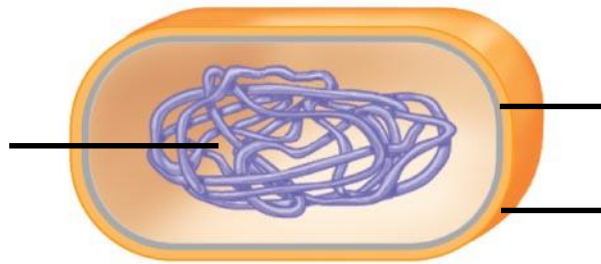
# *Chapter* 8



Prokaryotic chromosome

Plasma membrane

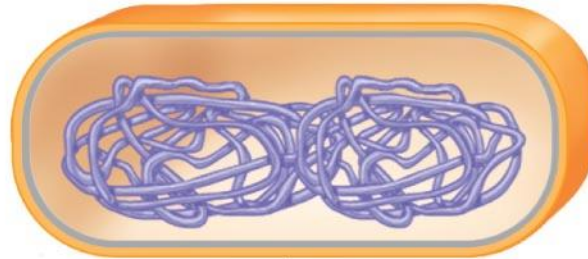
Cell wall



1

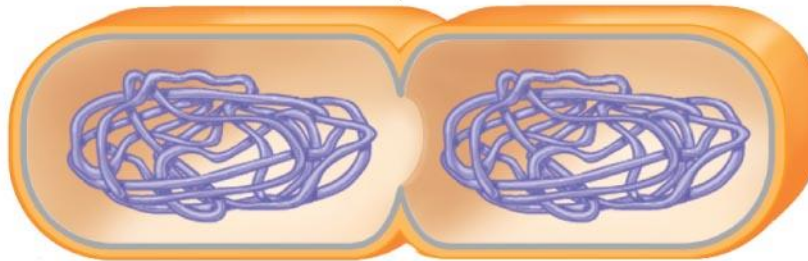
Duplication of chromosome  
and separation of copies

Binary fission of a  
prokaryotic cell



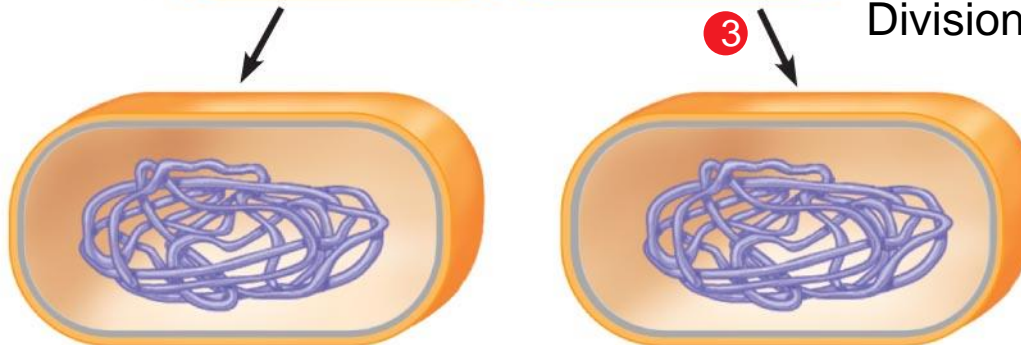
2

Continued elongation of the  
cell and movement of copies



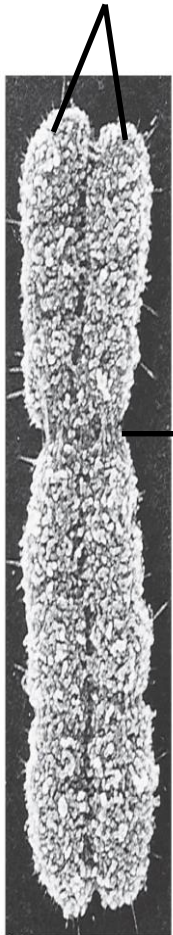
3

Division into two daughter cells



Sister chromatids

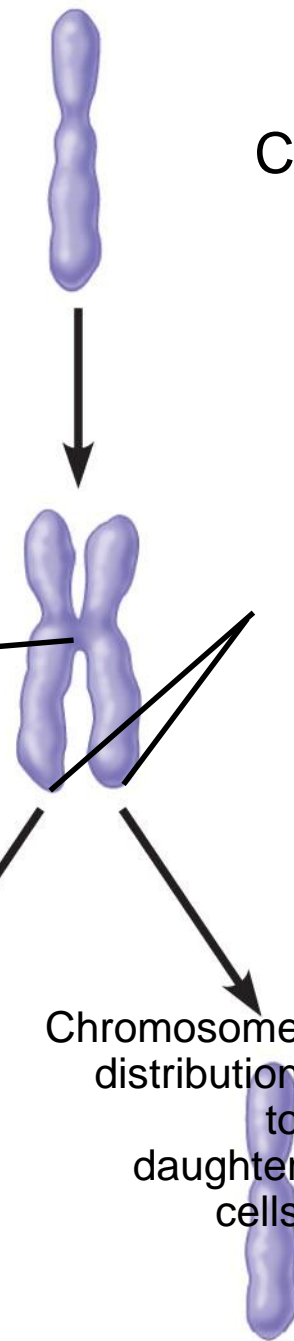
Chromosome duplication



Centromere

Sister chromatids

Electron micrograph  
of a duplicated chromosome



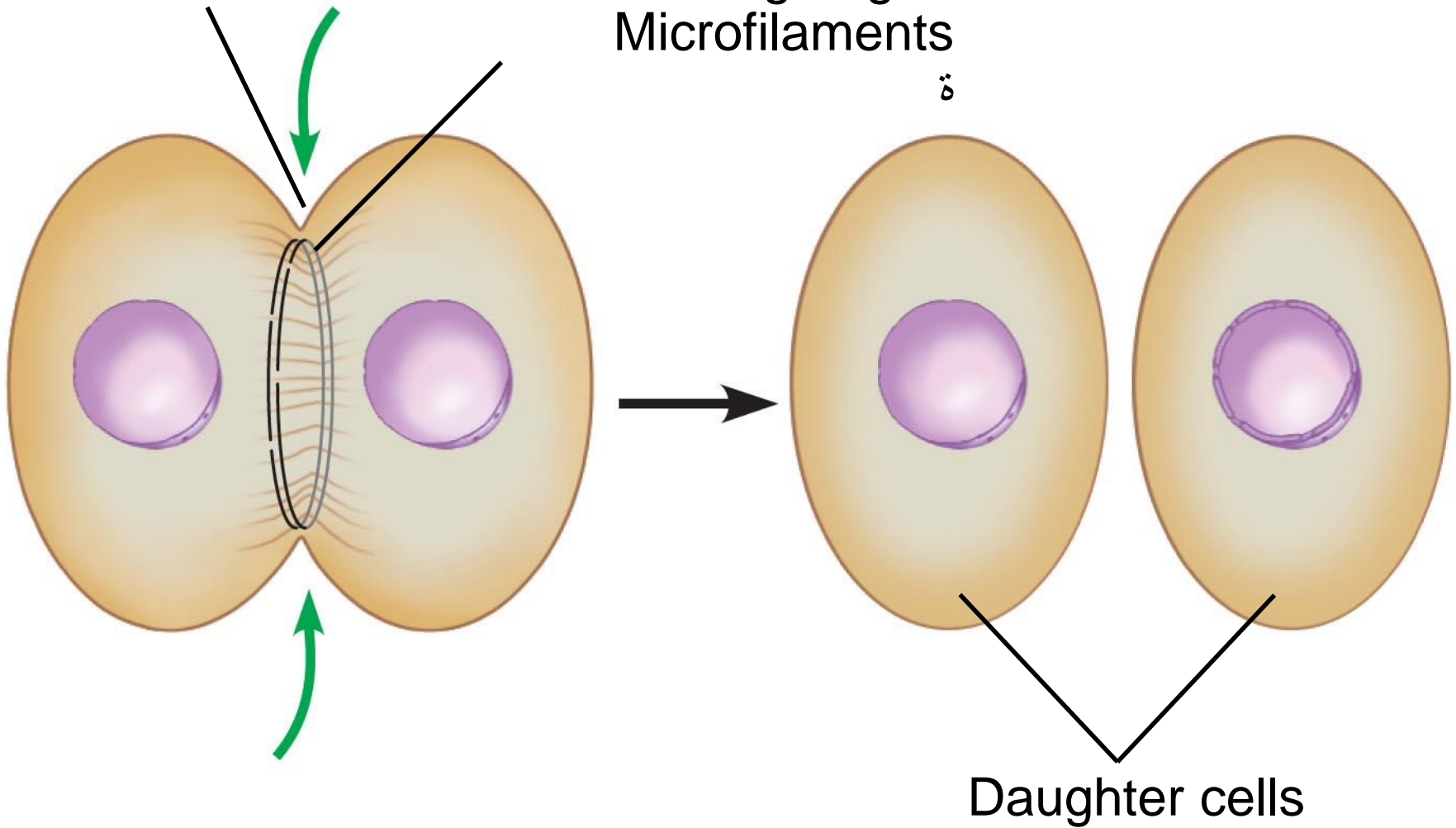
Chromosome  
distribution  
to  
daughter  
cells

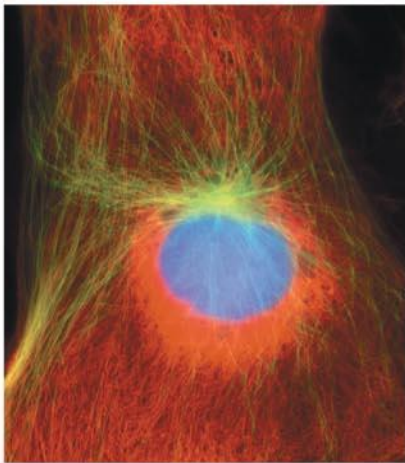
Chromosome duplication  
and distribution



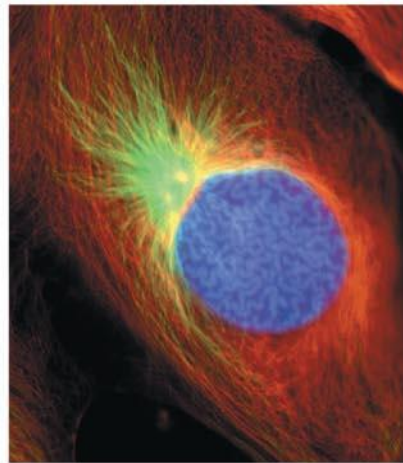
Cleavage furrow

Contracting ring of  
Microfilaments  
 $\delta$

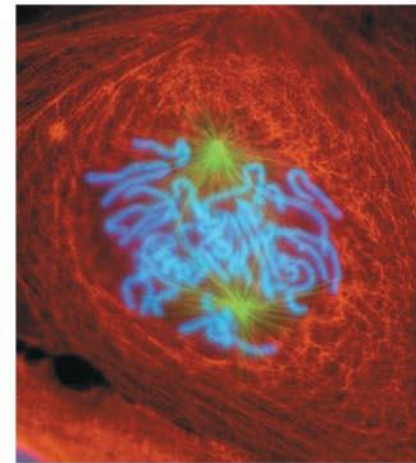




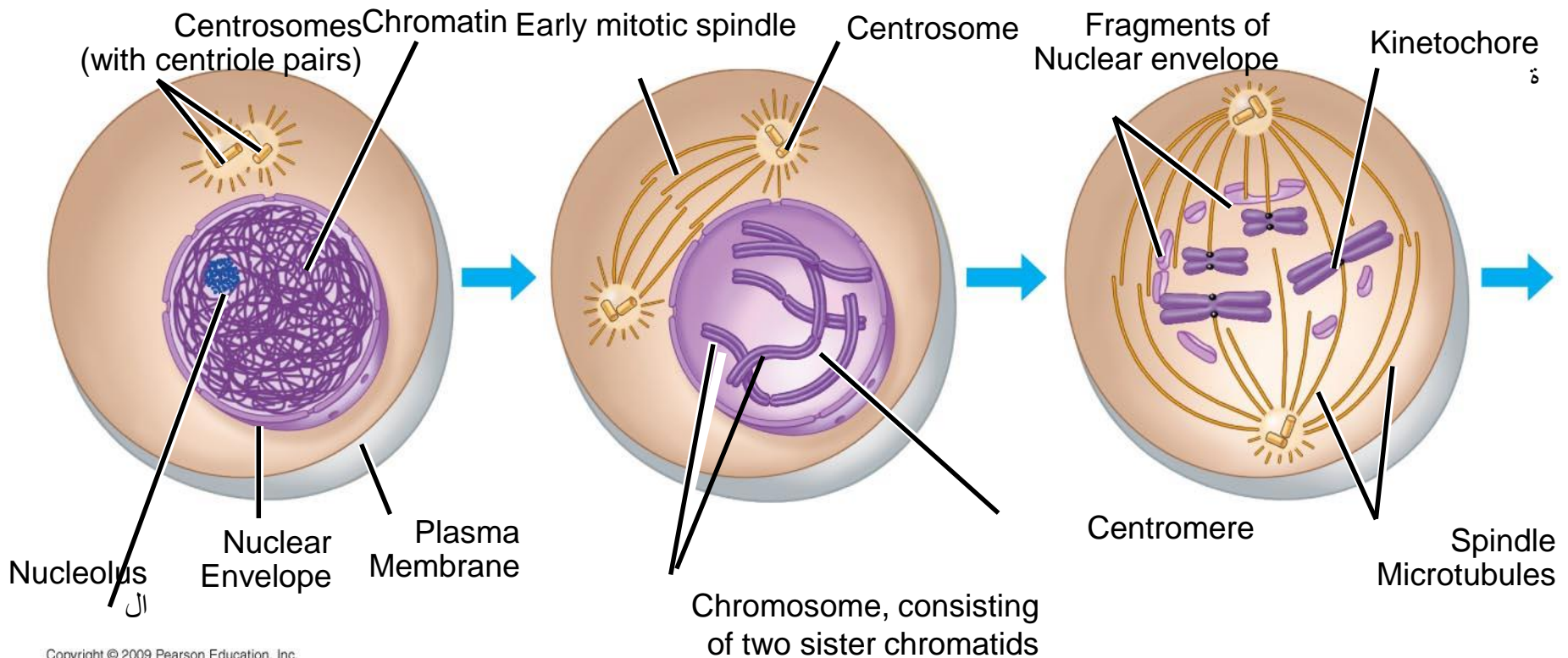
INTERPHASE



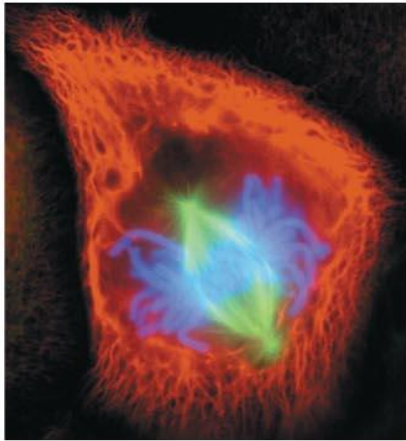
PROPHASE



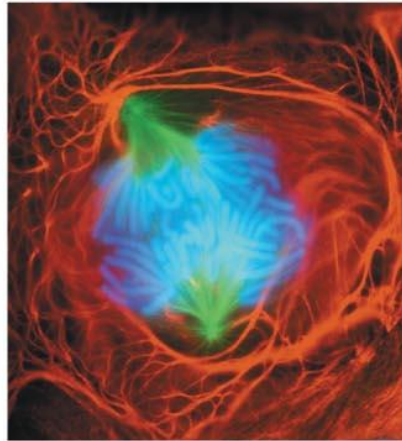
PROMETAPHASE



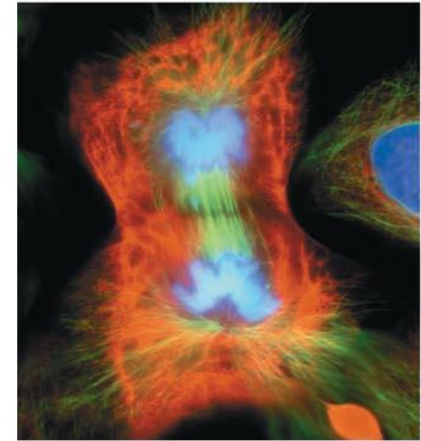




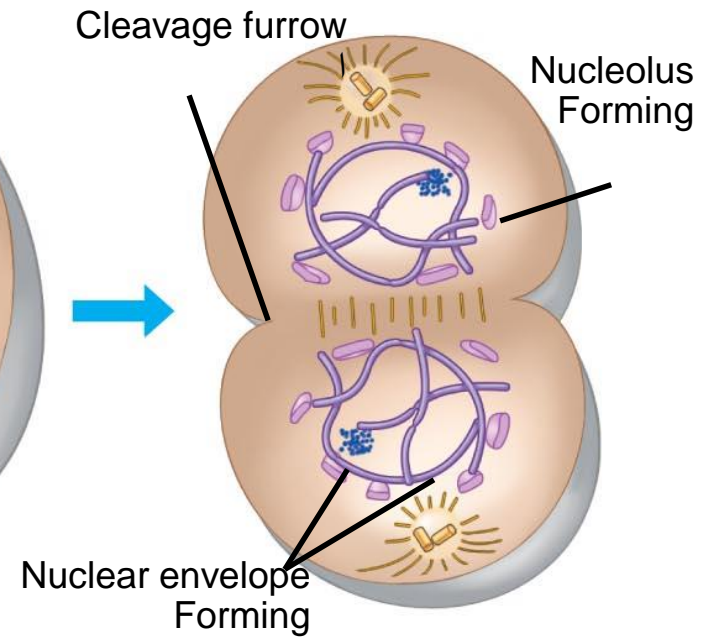
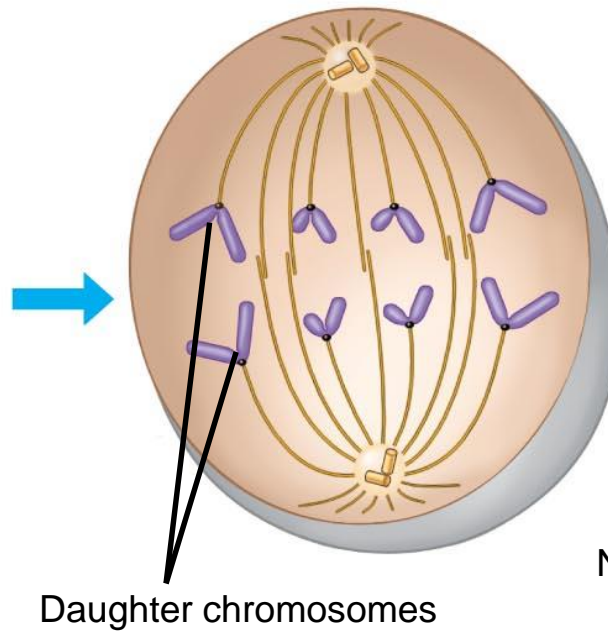
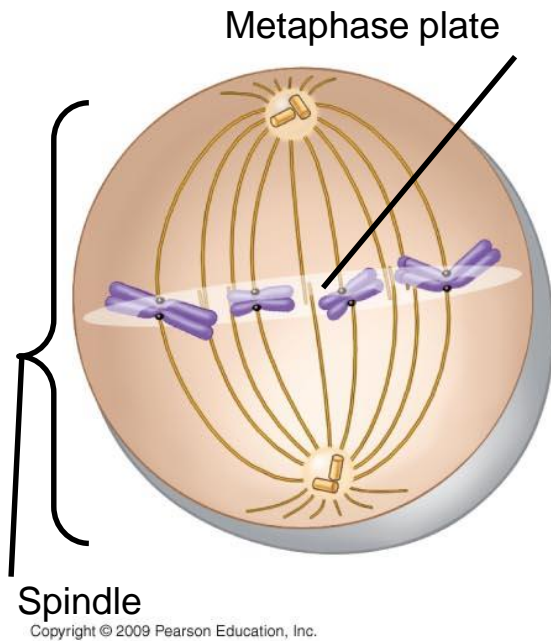
METAPHASE



ANAPHASE



TELOPHASE AND CYTOKINESIS



# MEIOSIS I: Homologous chromosomes separate

الانقسام الاختزالي الأول: انفصال الأزواج الكروموزومية المتماثلة

INTERPHASE

الطور البيني

PROPHASE I

الطور التمهيدي الأول

METAPHASE I

الطور الاستوائي الأول

ANAPHASE I

الطور الانفصالي الأول

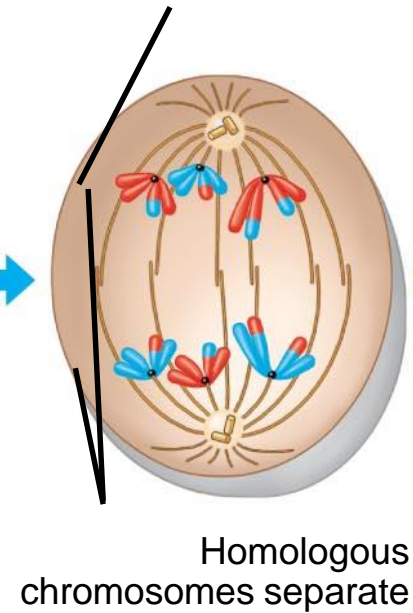
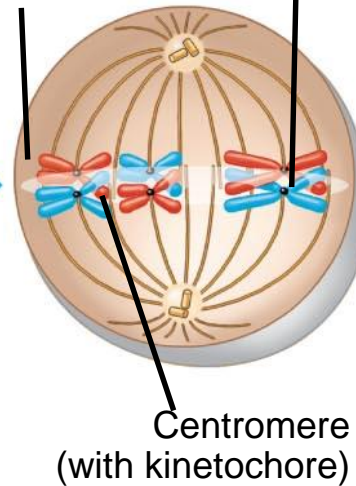
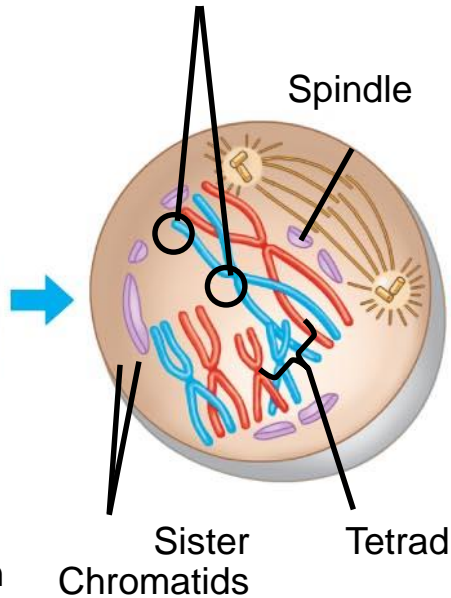
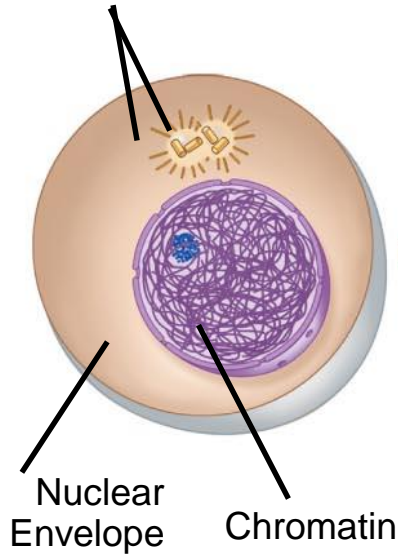
Centrosomes (with Centriole pairs)

Sites of crossing over

Microtubules attached to Kinetochore

Metaphase Plate

Sister chromatids remain attached



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The stages of meiosis I





**MEIOSIS II: Sister chromatids separate**  
الانقسام الاختزالي الثاني: انفصال الكروماتيدات الشقيقة

TELOPHASE I  
AND CYTOKINESIS

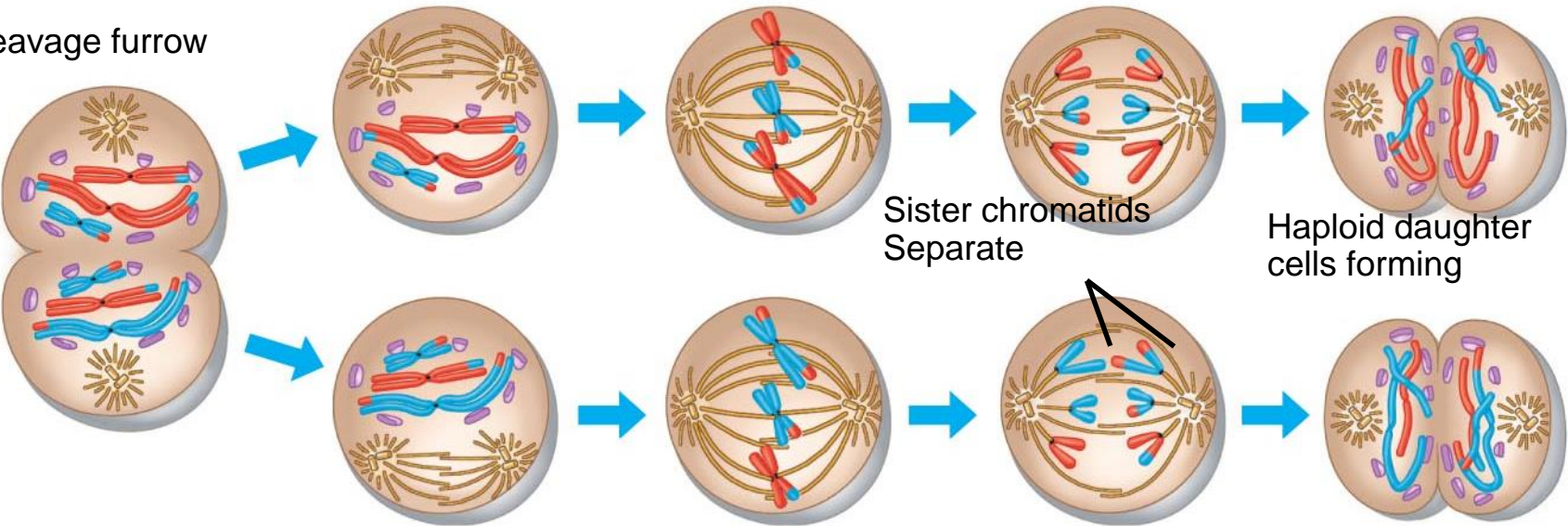
PROPHASE II

METAPHASE II

ANAPHASE II

TELOPHASE II  
AND CYTOKINESIS

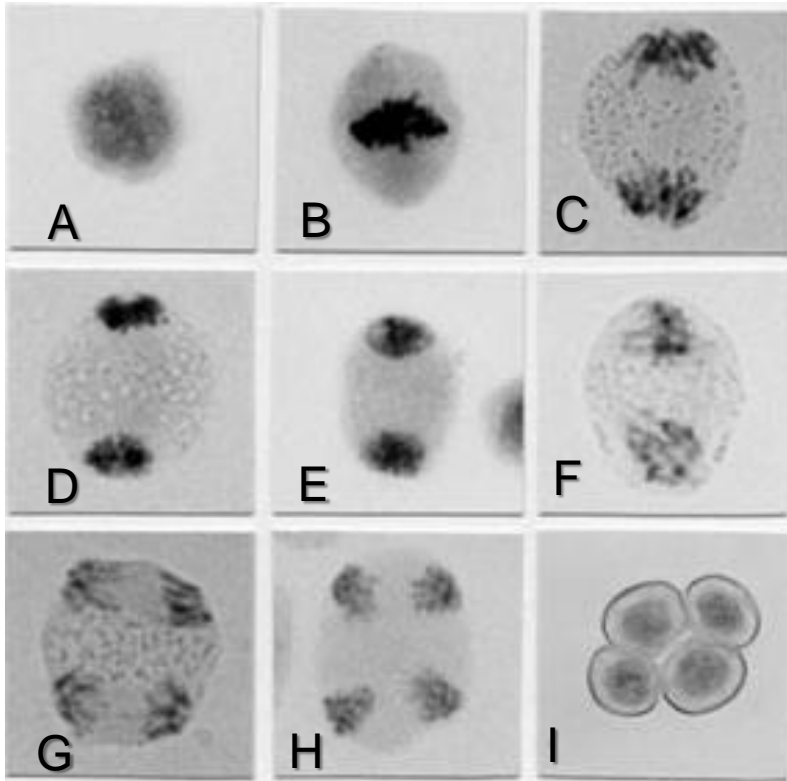
Cleavage furrow



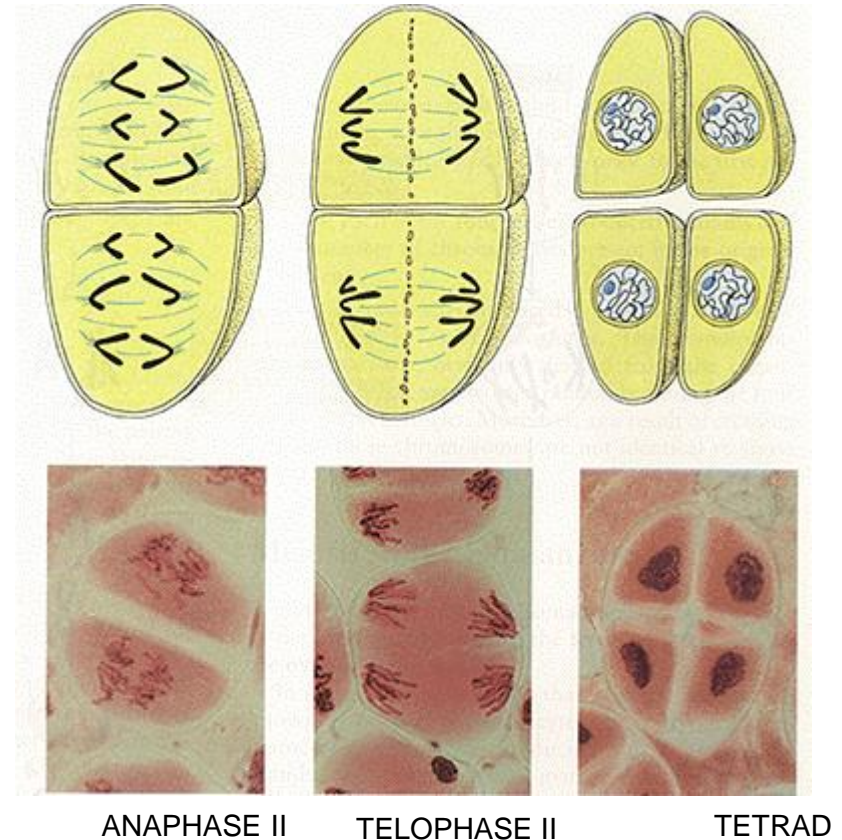
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The stages of miosis II

# MEIOSIS

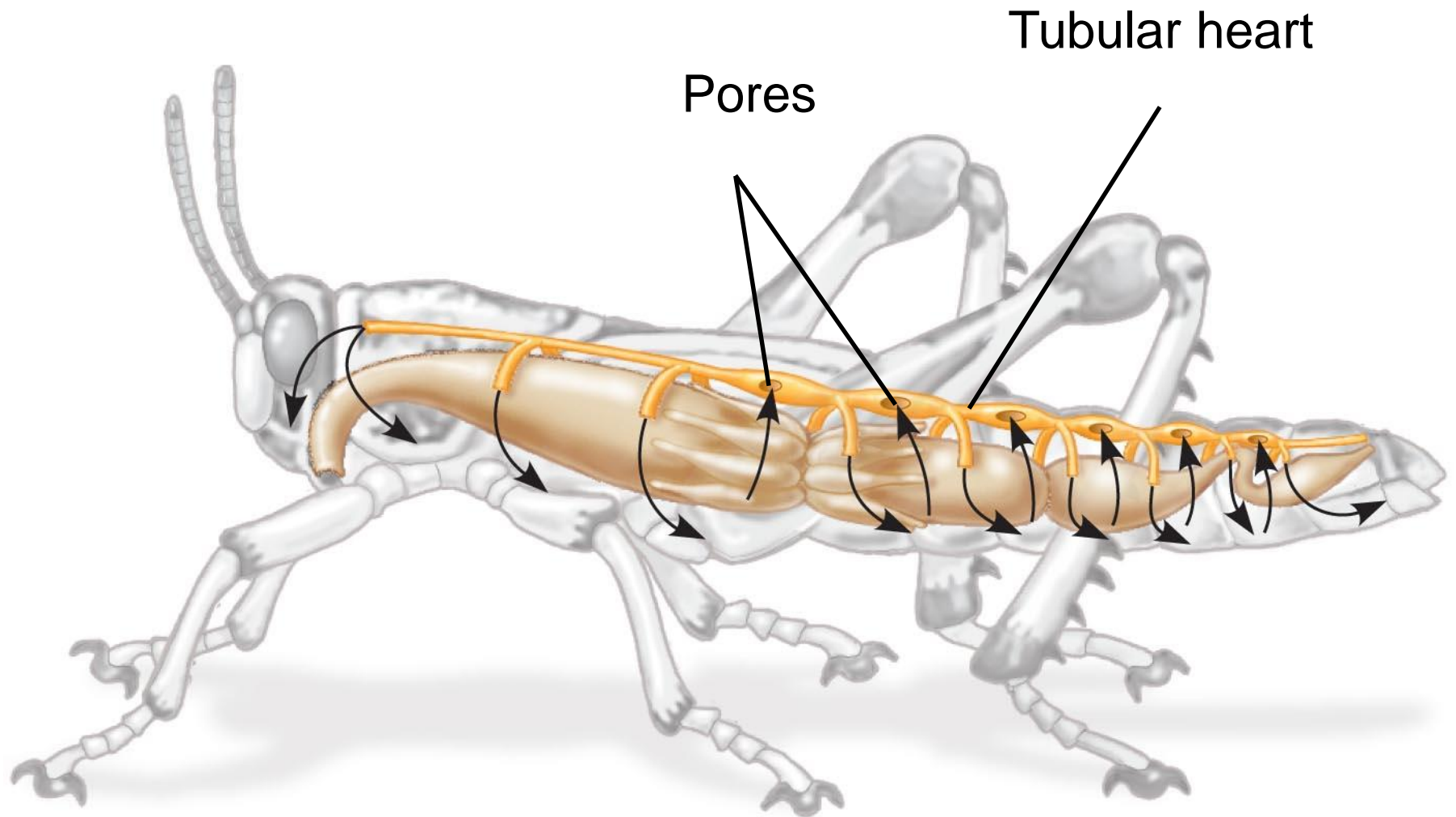


- A. PROPHASE I
- B. METAPHASE I
- C. ANAPHASE I
- D. TELOPHASE I
- E. PROPHASE II
- F. METAPHASE II
- G. ANAPHASE II
- H. TELOPHASE II
- I. TETRAD





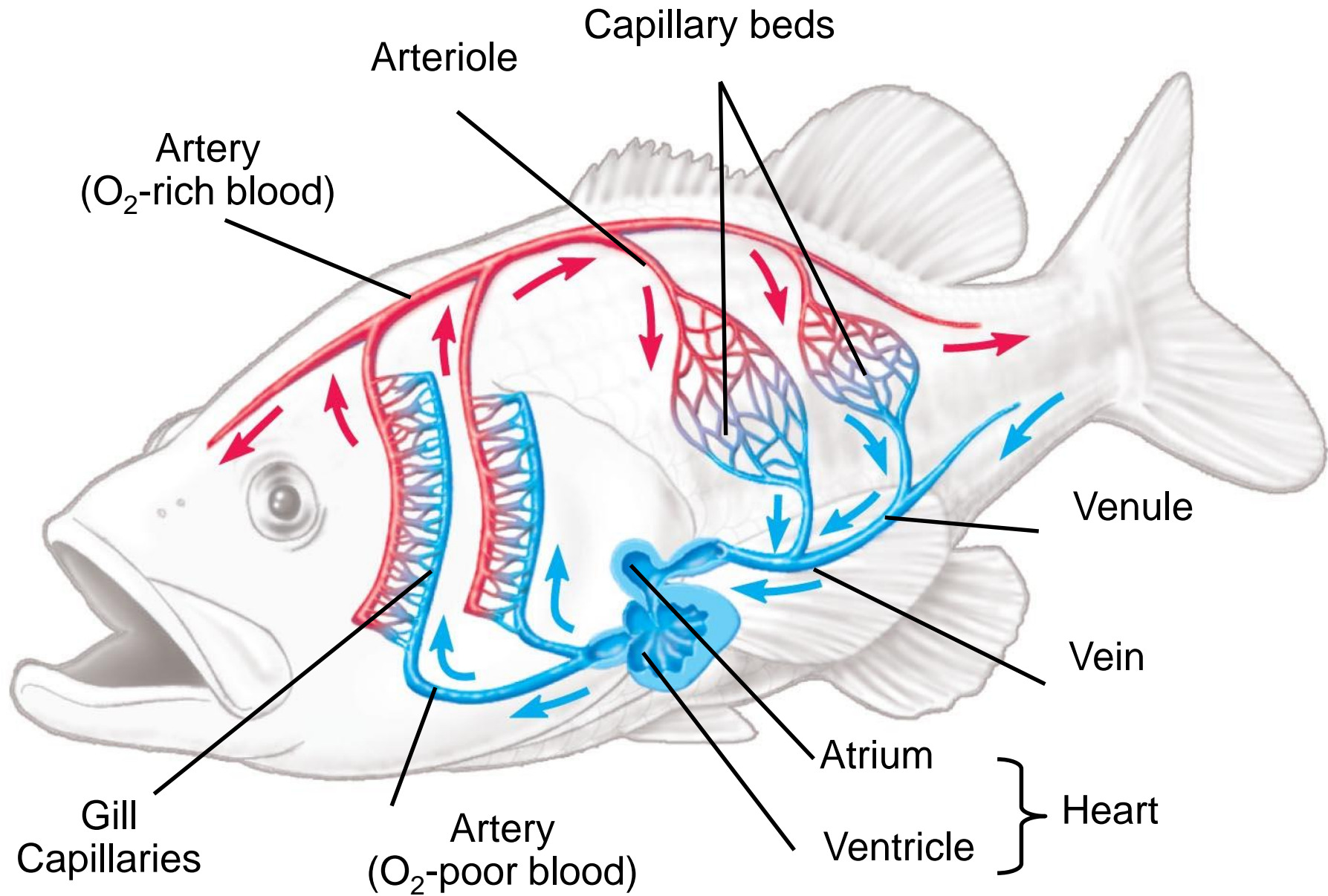
# *Chapter* *23*



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**The open circulatory system (vessels in gold) in a grasshopper**



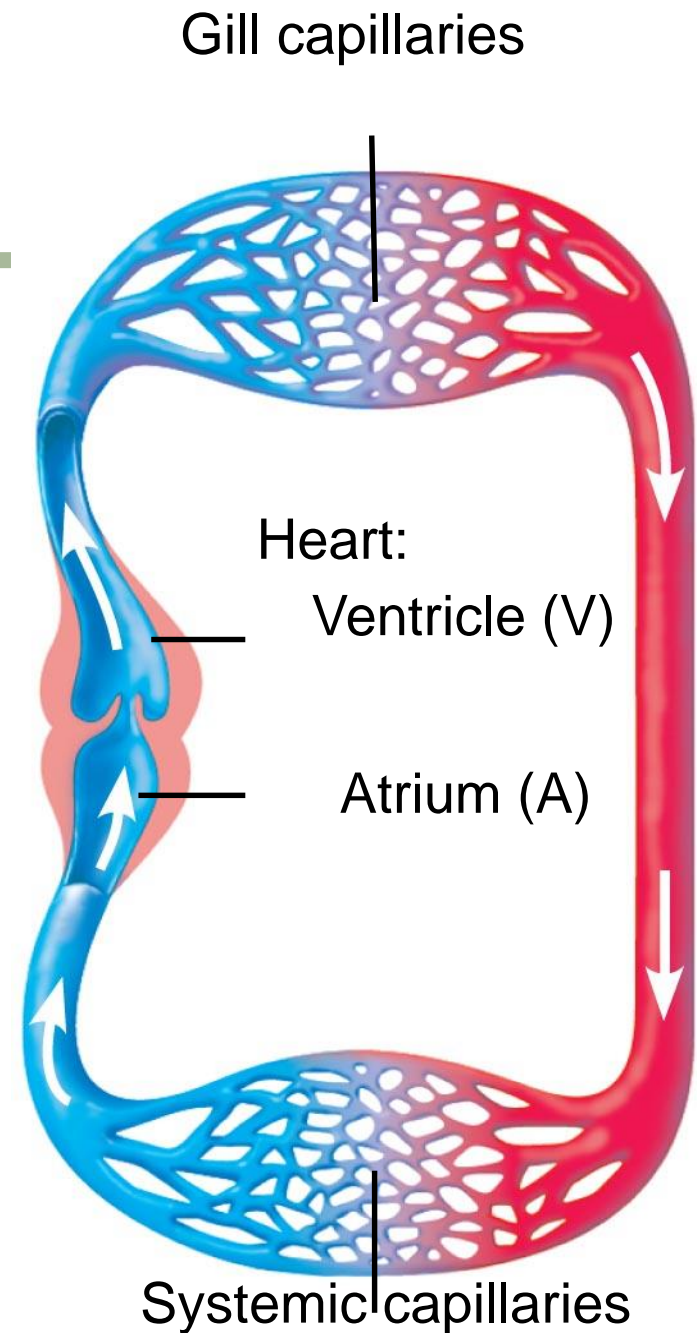


## The closed circulatory system in a fish

## 23.2 EVOLUTION CONNECTION: Vertebrate Cardiovascular systems reflect evolution

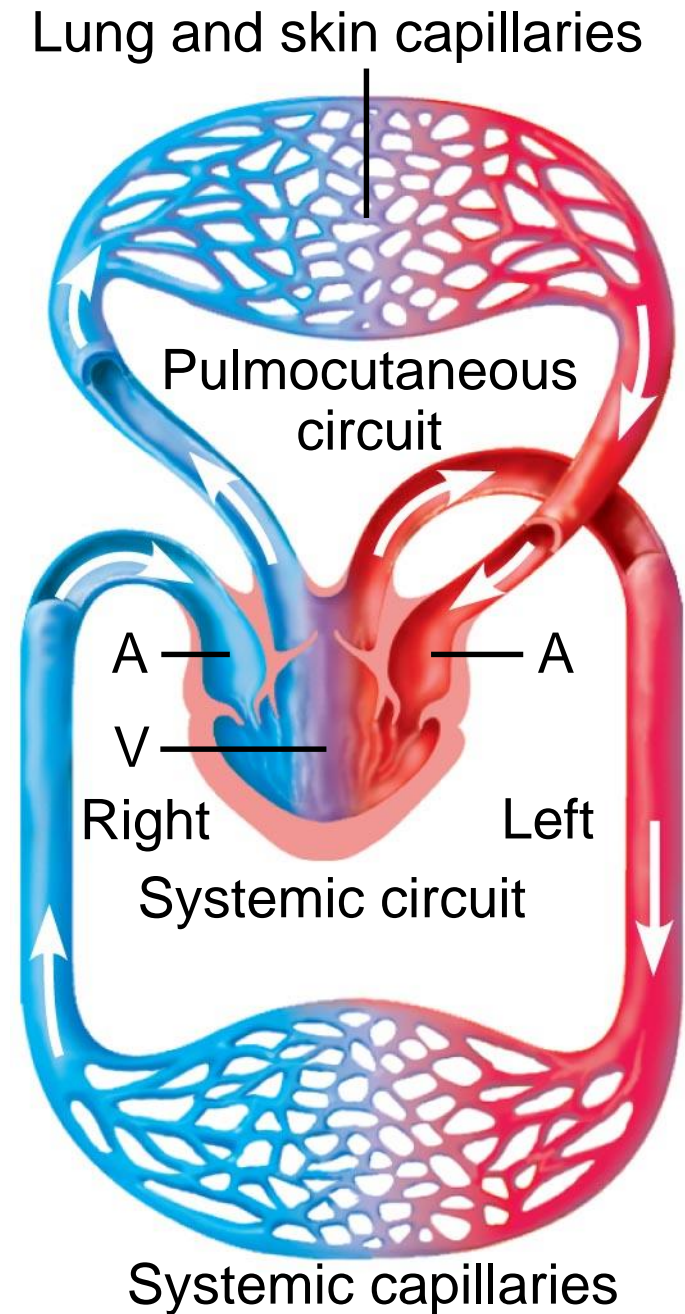
---

- **Two-chambered heart**  
in fish pumps blood in a  
single circuit From gill  
capillaries To systemic  
capillaries Back to heart

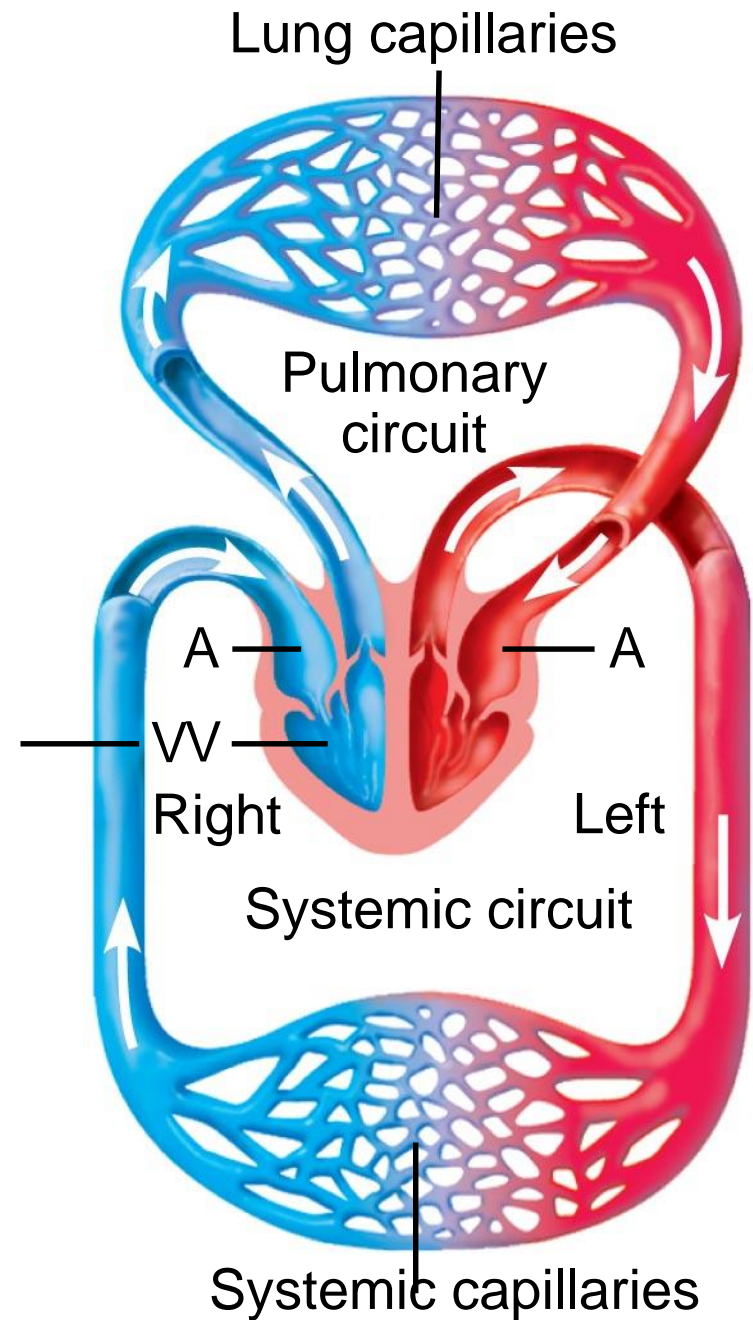




# The double circulation and three-chambered heart of an amphibian



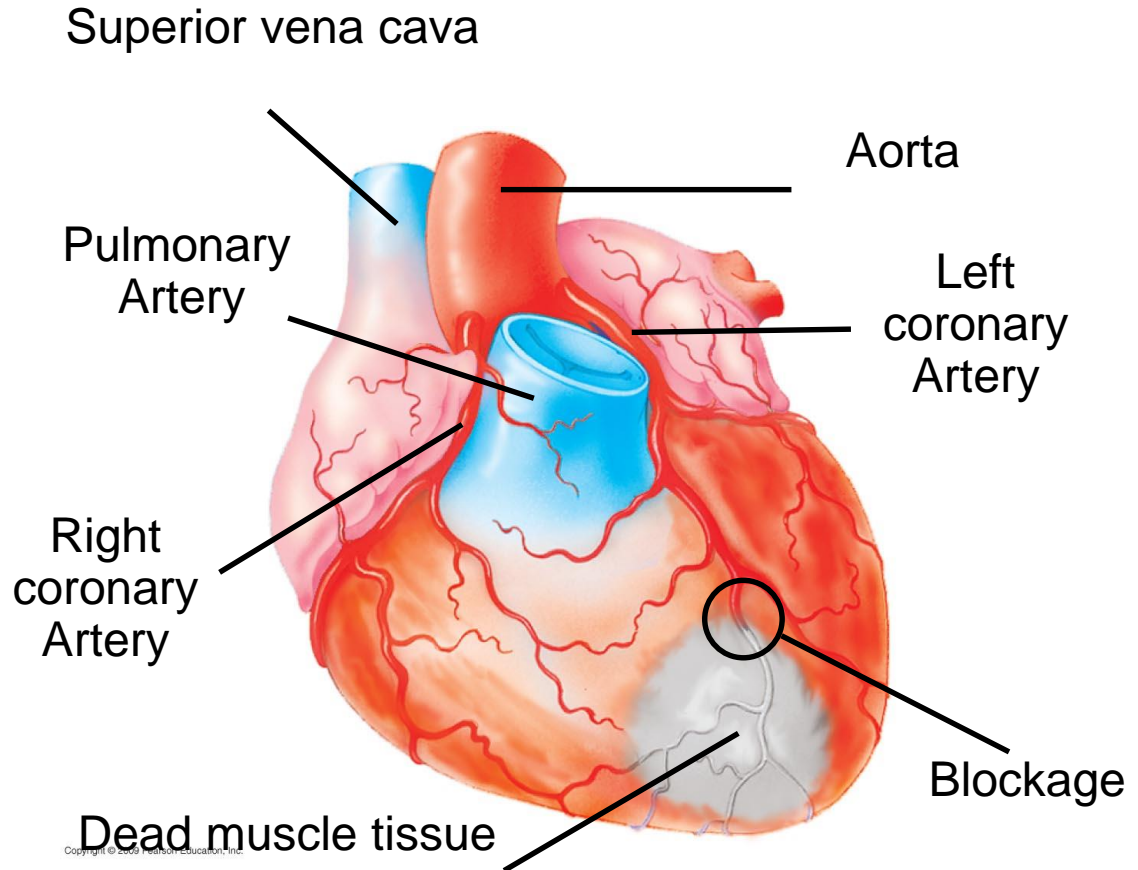
**The double circulation  
and four-chambered  
heart of a bird or  
mammal**





## 23.6 CONNECTION: What is a heart attack?

- **A heart attack is damage to cardiac muscle typically from a blocked coronary artery**
- **Stroke** Death of brain tissue from blocked arteries in the head

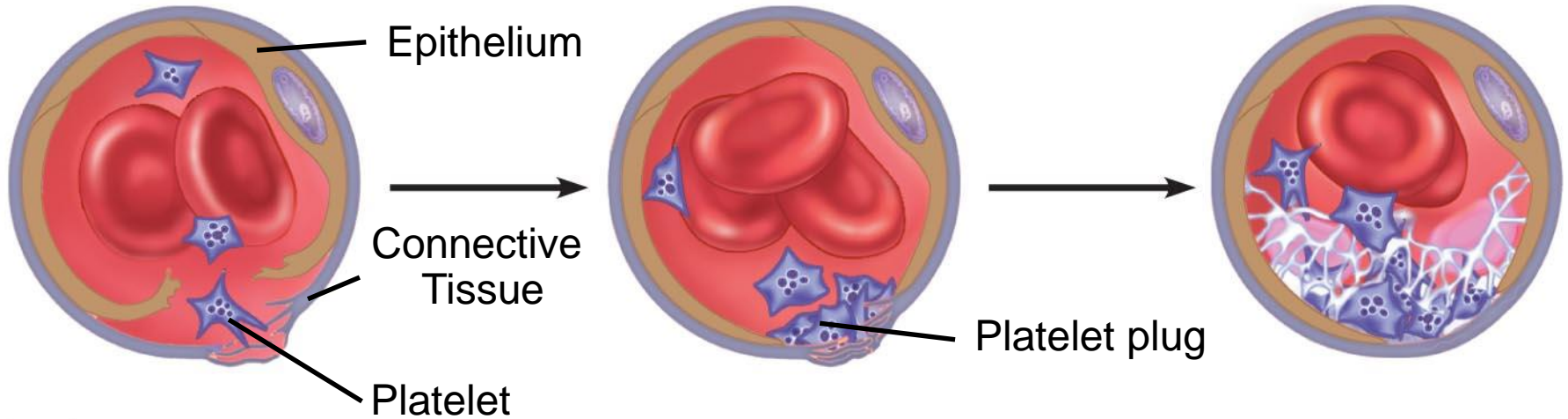


Blockage of a coronary artery, resulting in a heart attack

1 Platelets adhere  
to exposed  
connective tissue

2 Platelet plug  
Forms

3 Fibrin clot  
traps  
blood cells



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A fibrin clot

# The blood-clotting process



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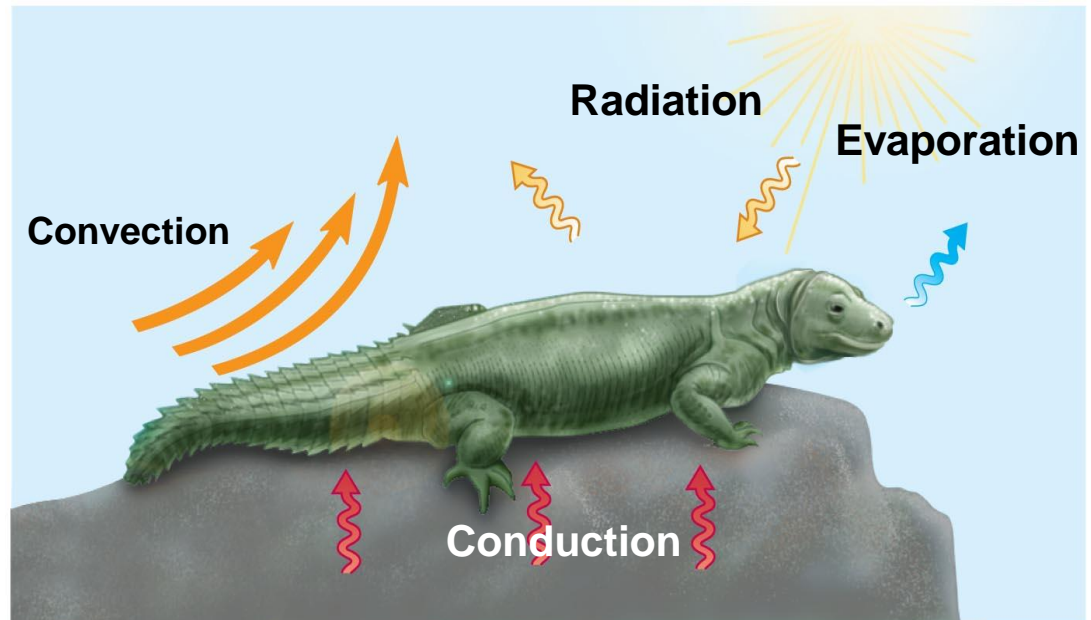
*Chapter*

*25*

## 25.2 Heat is gained or lost in four ways

- **Heat exchange with the environment may occur by**
  - **Conduction**
  - **Convection**
  - **Radiation**
  - **Evaporation**

Mechanisms of  
heat exchange





## 25.3 Thermoregulation involves adaptations that balance heat gain and loss

---

### 2- Insulation

- Hair
- Feathers
- Fat layers



### 3- Circulatory adaptations

- Increased or decreased blood flow to skin
- Large ears in elephants
- Countercurrent heat exchange

**Osmotic water gain through gills  
and other parts of body surface**

**Uptake of  
some ions  
in food**

**Uptake of  
salt by  
gills**

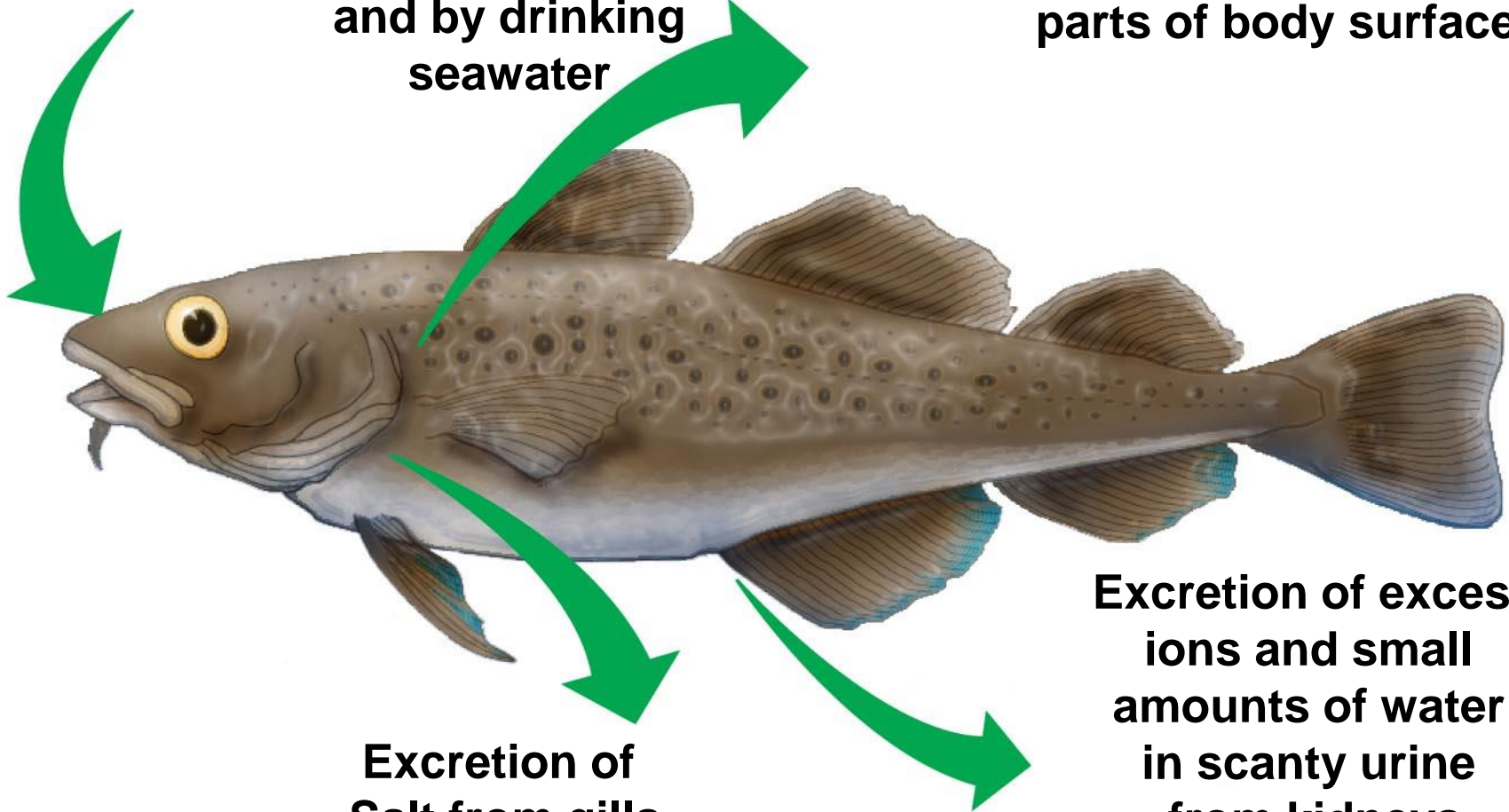
**Excretion of  
large amounts of  
water in dilute  
urine from kidneys**

**Osmoregulation in a perch, a freshwater fish**



**Gain of water and salt from food and by drinking seawater**

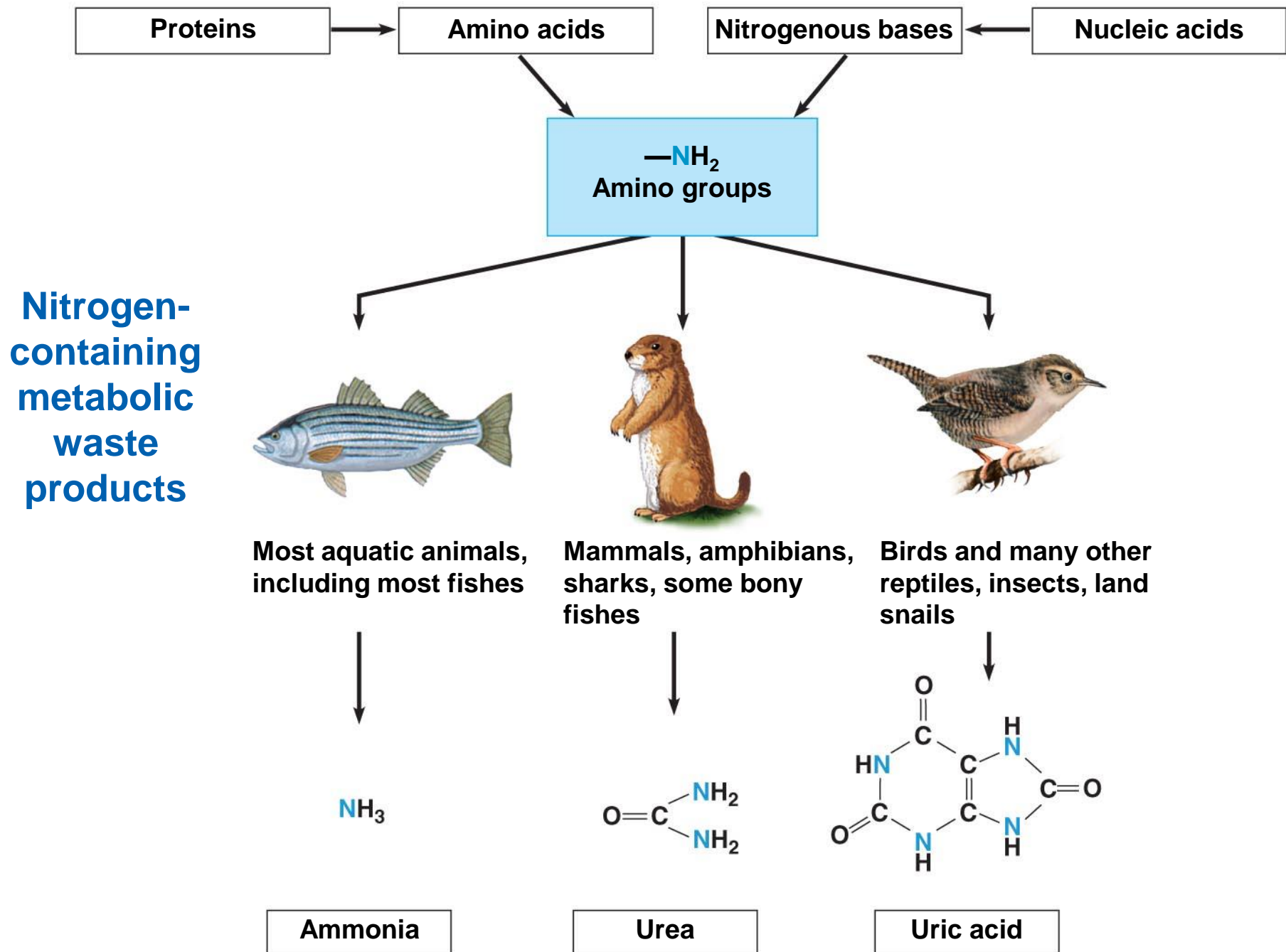
**Osmotic water loss through gills and other parts of body surface**



**Excretion of Salt from gills**

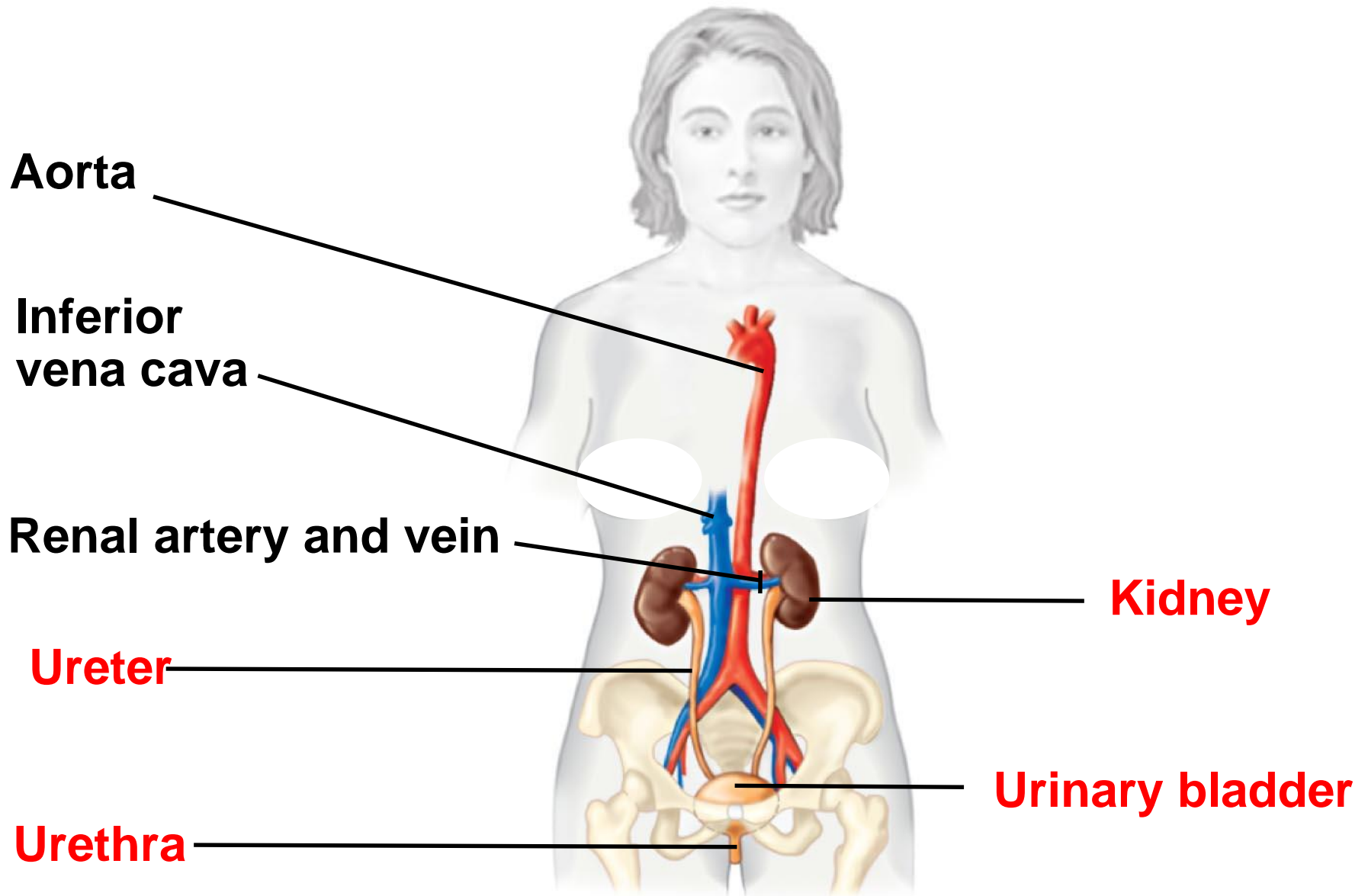
**Excretion of excess ions and small amounts of water in scanty urine from kidneys**

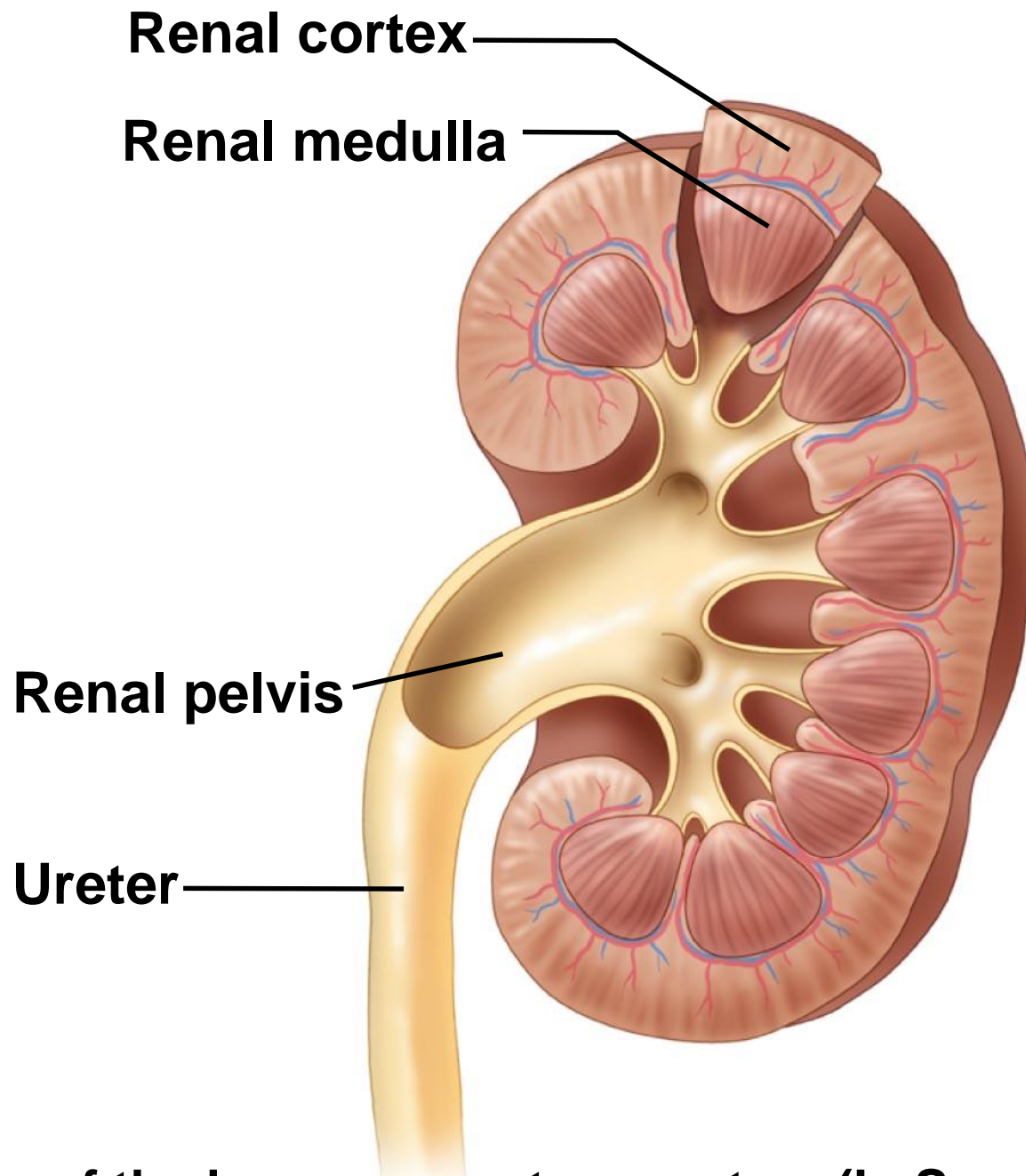
## **Osmoregulation in a cod, a saltwater fish**





# Anatomy of the human urinary (excretory) system





**Anatomy of the human excretory system (L. Sec. Kidney)**



**Bowman's Capsule**

**Tubule**

**Renal cortex**

**Renal artery**

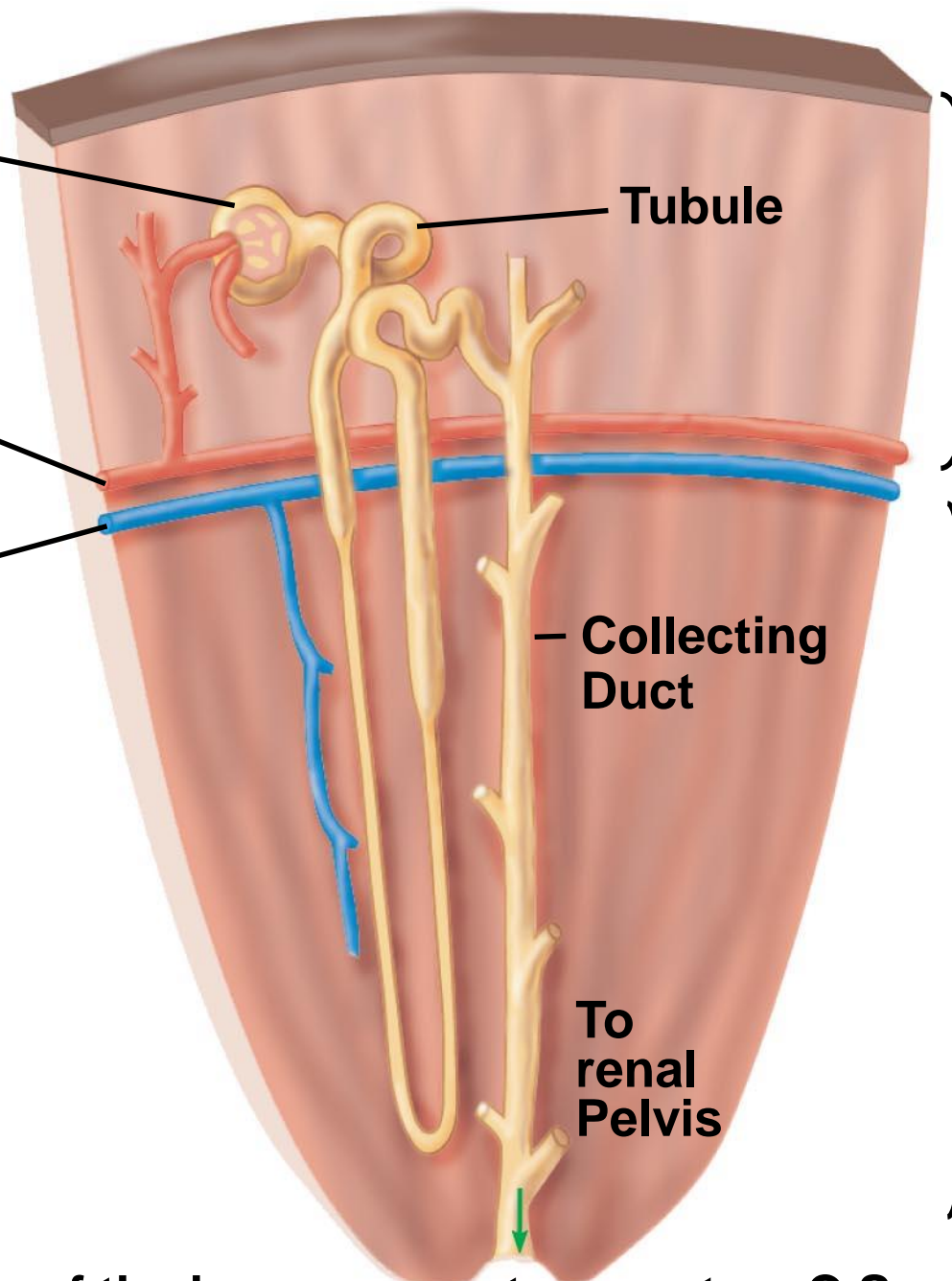
**Renal vein**

**Collecting Duct**

**Renal medulla**

**To renal Pelvis**

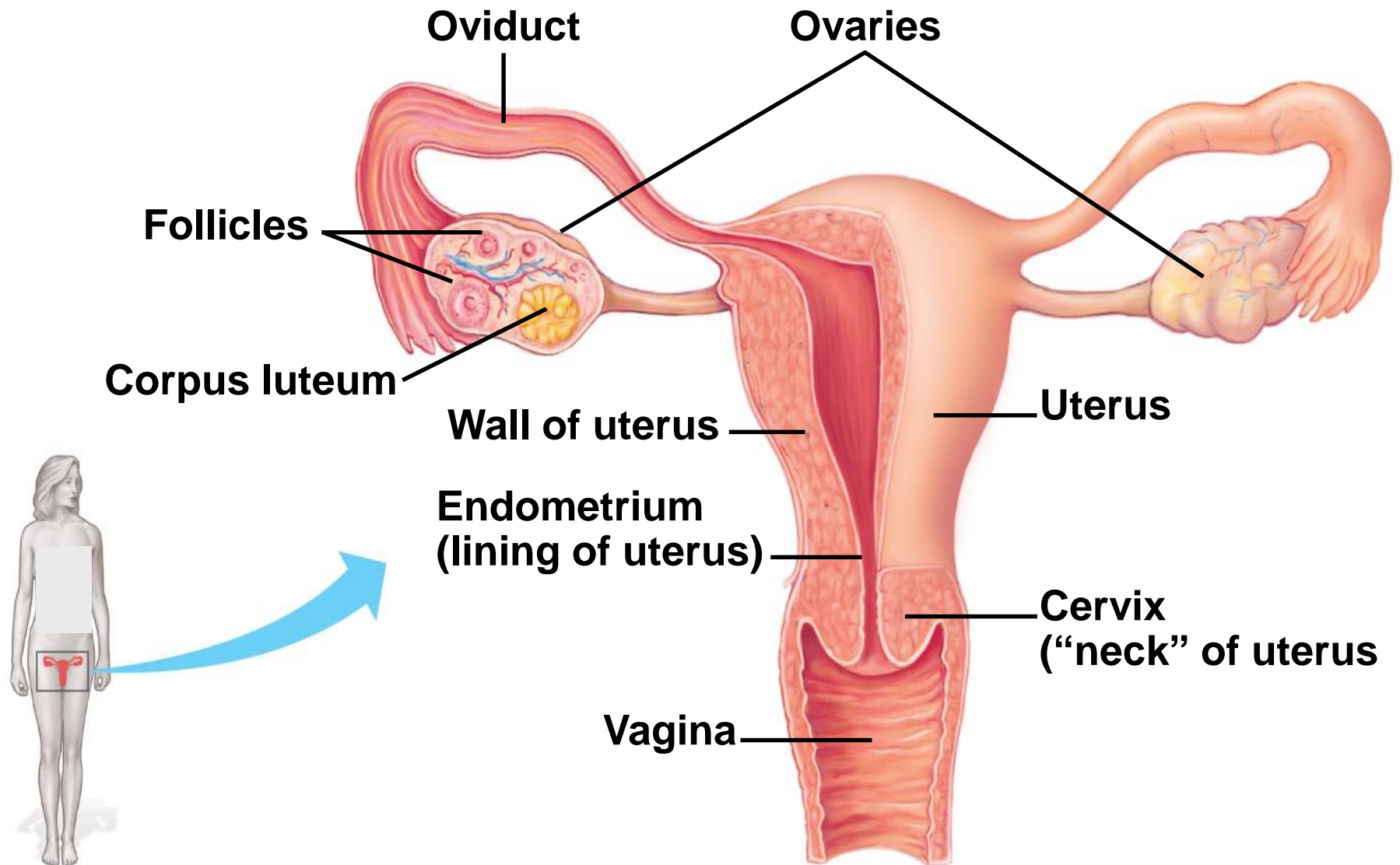
## **Anatomy of the human excretory system C.Sec. Kidney**



*Chapter*

*27*





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**Front view of female reproductive anatomy (upper portion)**

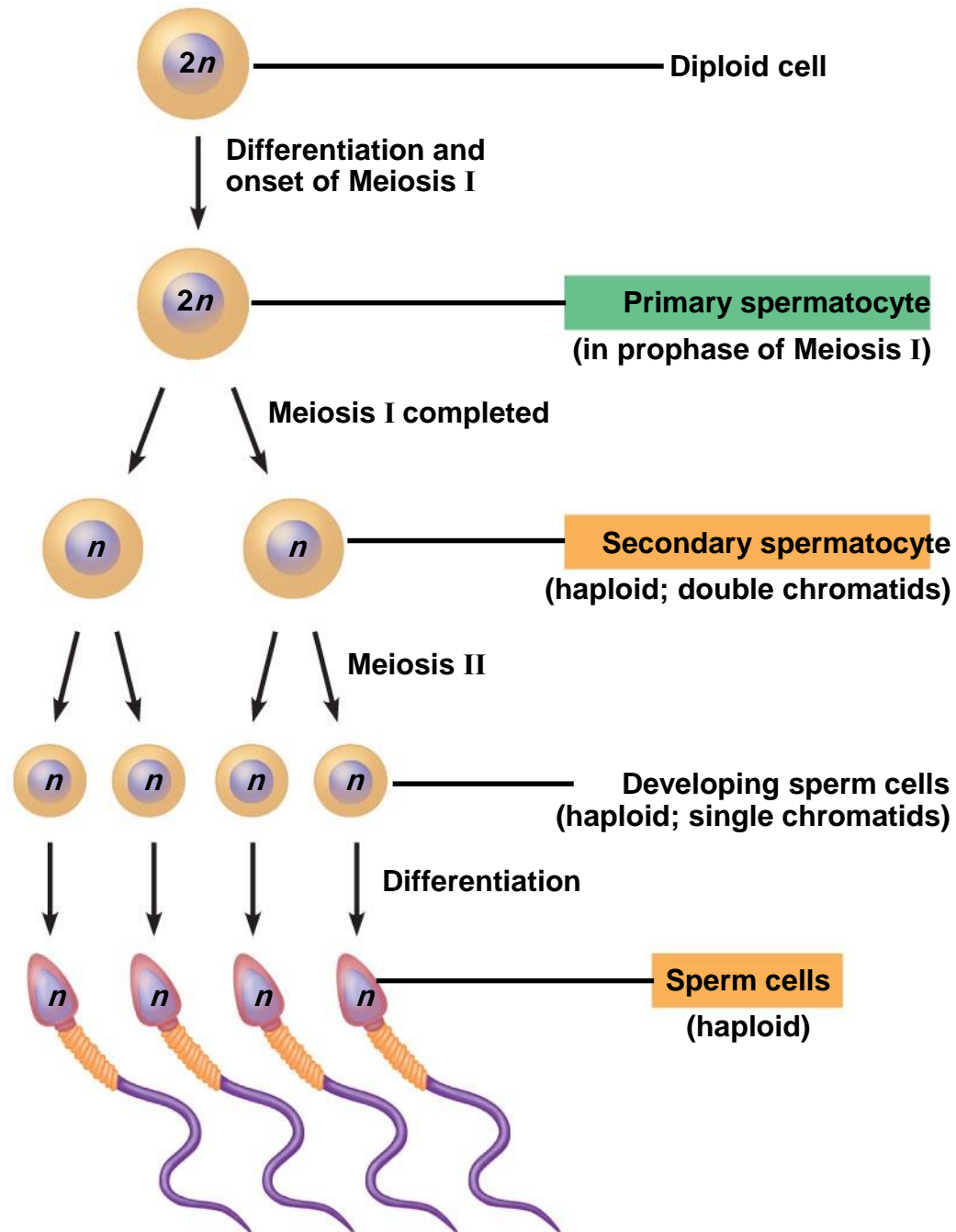
## 27.1 Asexual reproduction results in the generation of genetically identical offspring

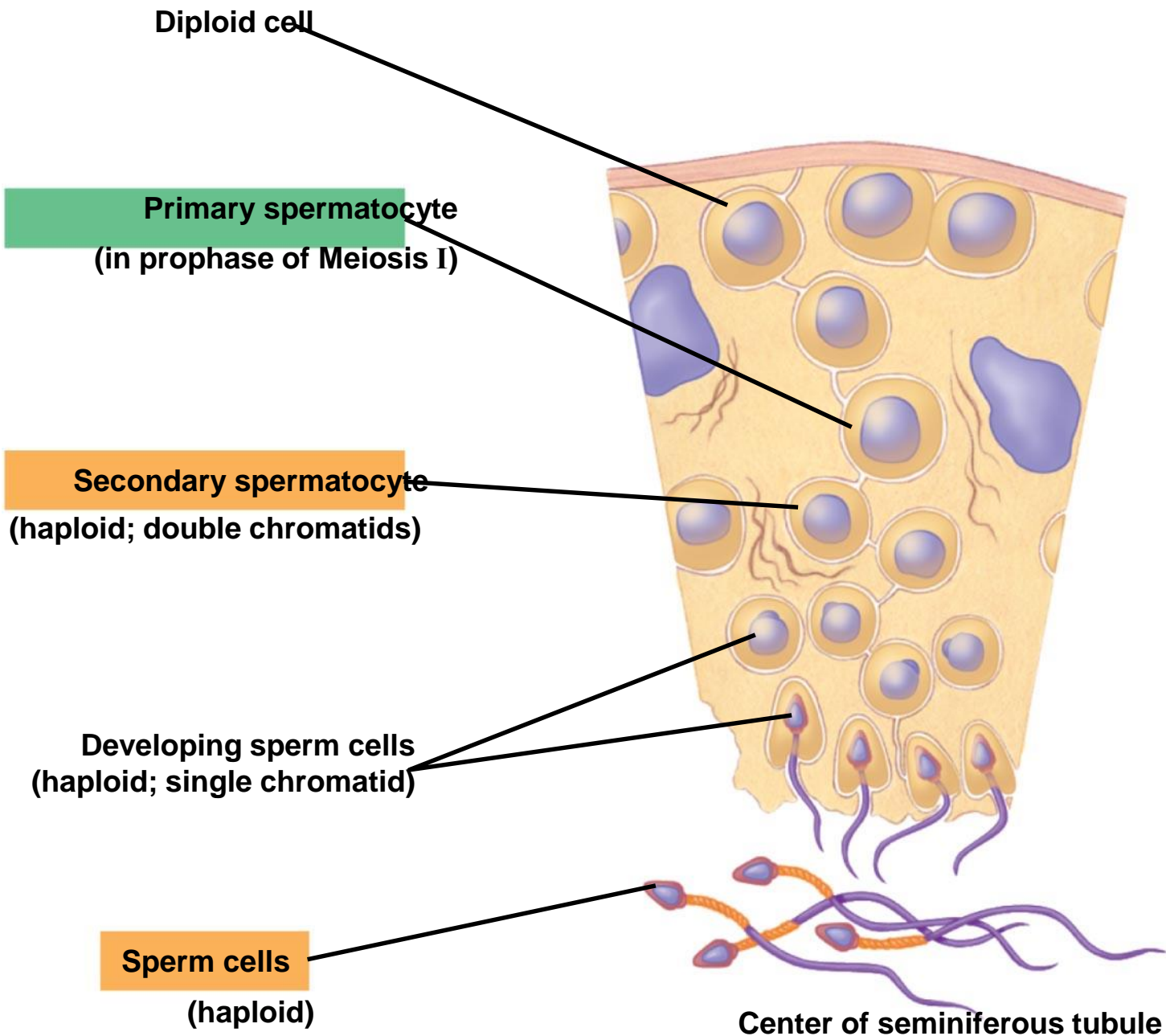
- **Asexual reproduction**
  - One parent produces **genetically identical offspring**
  - Very **rapid** reproduction
  - Can proceed via
    - **Budding** /
    - **Fission** /
    - **Fragmentation/regeneration**



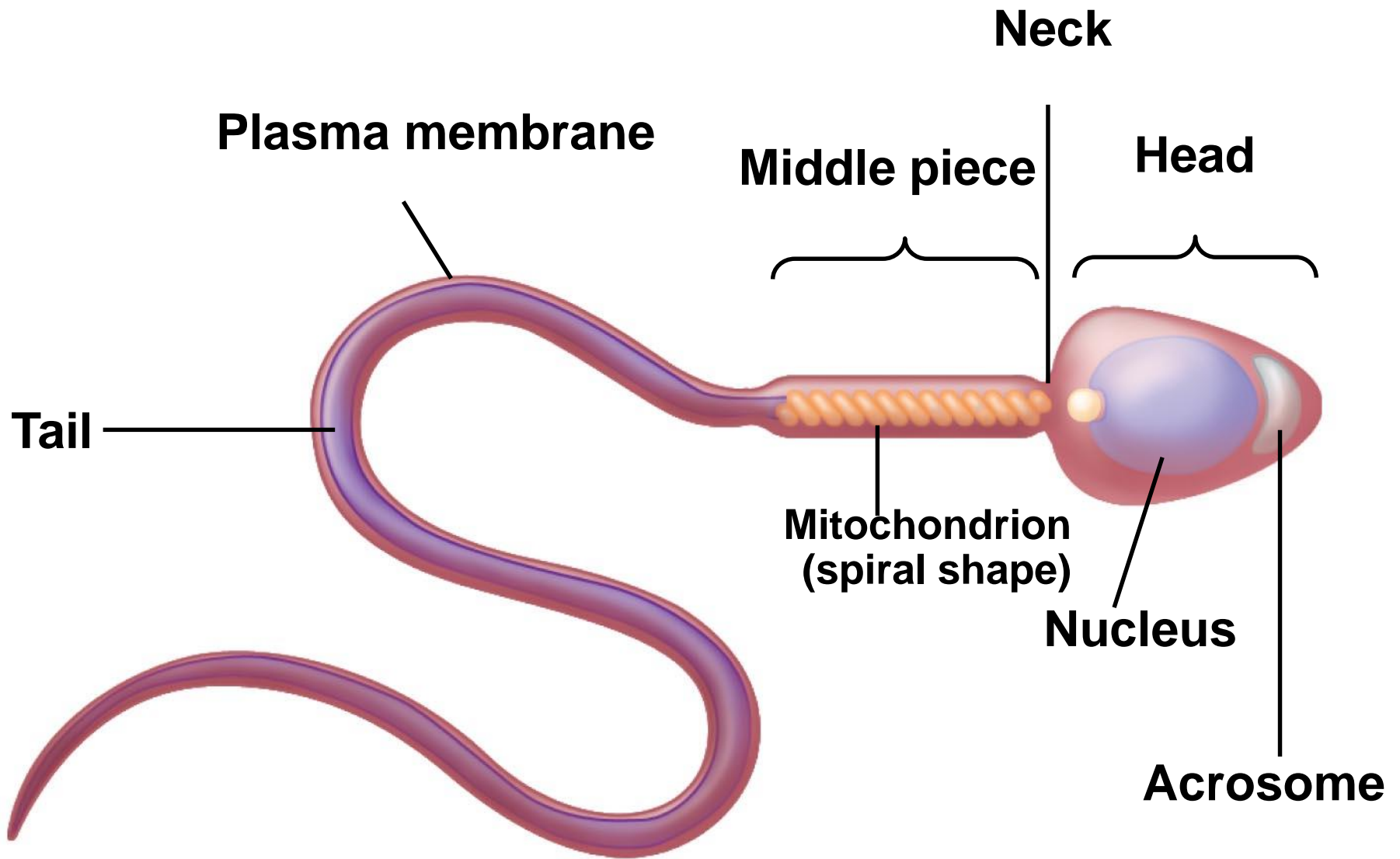
Asexual reproduction of an aggregating sea anemone (*Anthopleura elegantissima*) by fission











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**The structure of a human sperm cell**

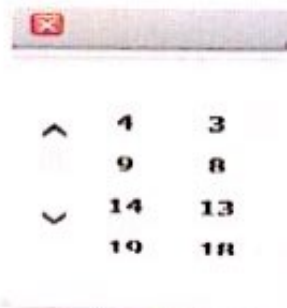
WISHING YOU ALL THE  
**GOOD LUCK**  
IN THE WORLD!





44 In mitosis, cells with 16 chromosomes produce daughter cells with \_\_\_\_\_.

- ☐ 8 chromosomes
- ☐ 4 chromosomes
- ☒ 16 chromosomes
- ☐ 32 chromosomes



متصفح الأسفله

السؤال التالي <

Which of the following regarding animals characteristics is False:

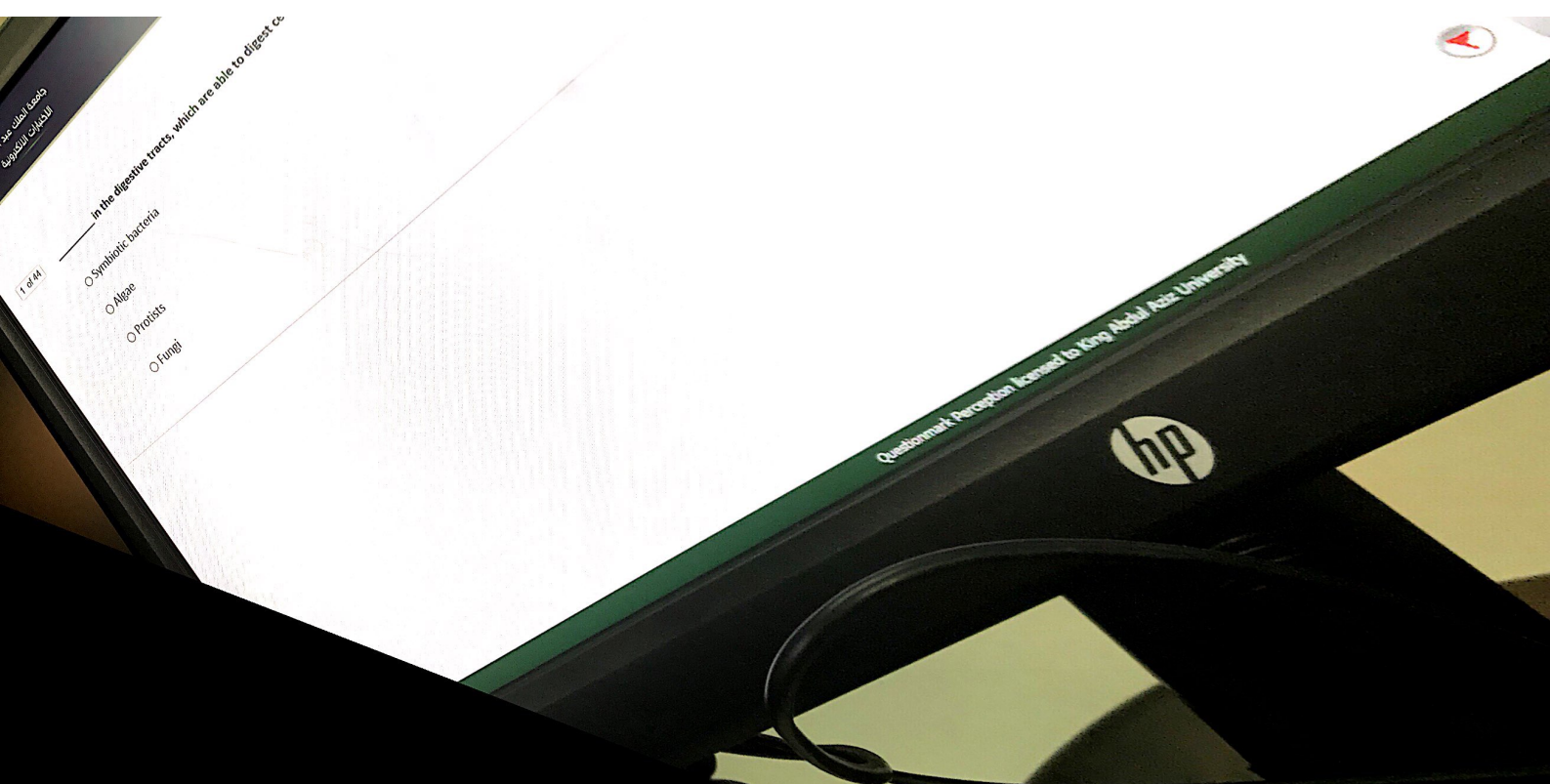
- ☐ animal cells have cell wall
- ☐ animals are multi-cellular
- ☐ animals reproduce sexually
- ☐ animals are mobile



18 of 44

*Crustaceans belong to \_\_\_\_\_.*

- ☐ Round worms
  - ☐ Flat worms
  - ☐ Arthropoda
  - ☐ Annelida
-





17 of 44

Replication of DNA is considered semiconservative because each old strand

- ☐ catalyst
- ☐ template
- ☐ pair
- ☐ fragment

Replication of DNA is considered semiconservative because each old strand serves as a \_\_\_\_\_ for the formation of a new strand

- ☐ catalyst
- ☐ template
- ☐ pair
- ☐ fragment



Regarding DNA structure ,which is correct ?

- ☐ The sugar is deoxyribose
  - ☒ the sugar is ribose
  - ☐ C is paired with A
  - ☐ The monomer is amino acid
-

Regarding DNA structure ,which is correct ?

- ☐ The sugar is deoxyribose
- ☒ the sugar is ribose
- ☐ C is paired with A
- ☐ The monomer is amino acid



جامعة  
البحرين

The ability of an organisms to maintain the stability of their internal environment is

- ☐ reproduction
- ☐ energy processing
- ☐ homeostasis
- ☐ breath processing

\_\_\_\_\_ is the process during which a diploid cell undergoes two successive nuclear divisions resulting in four haploid cells

- ☐ Fertilization
- ☐ Cytokinesis
- ☐ Mitosis
- ☒ Meiosis





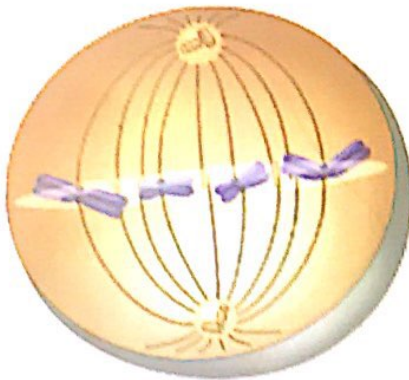
1 of 44

\_\_\_\_\_ in the digestive tracts, which are able to digest cellulose

- ☒ Symbiotic bacteria
- ☐ Algae
- ☐ Protists
- ☐ Fungi

12 of 44

In this photo, what is the phase of mitosis cell division?

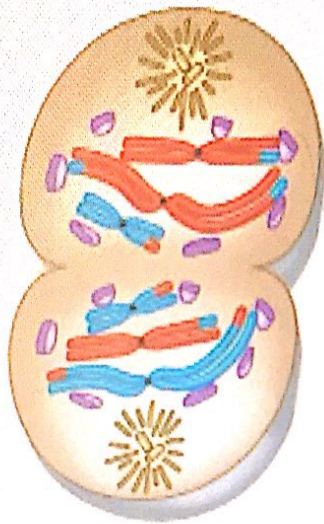


- ☐ prophase
- ☒ metaphase
- ☐ interphase
- ☐ telophase



43 of 44

*In this photo, what is the phase of miosis cell division?*



- ☐ metaphase 1
- ☐ anaphase 1
- ☐ prophase 1
- ☒ telophase I & cytokinesis

29 of 44

## Homologous chromosomes \_\_\_\_\_

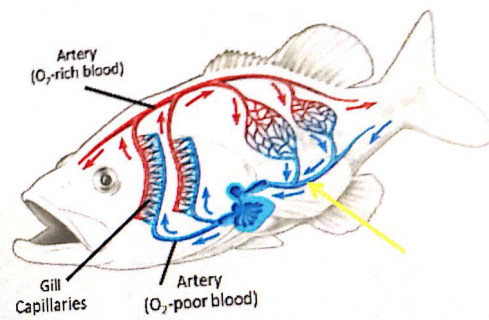
- ☒ have genes at the same loci
- ☐ separate in meiosis II
- ☐ have no genes
- ☐ are found in gametes





8 of 44

What is the part indicated by the yellow arrow in the picture?



- ☐ artery
- ☐ ventricle
- ☐ veins
- ☒ atrium



26 of 44

The genotype of (BB alleles) for a gene mean \_\_\_\_\_

- ☐ heterozygous for the dominant
- ☒ homozygous for the dominant
- ☐ monozygous for recessive
- ☐ homozygous for the recessive

Which of the following statements regarding spermatogenesis is TRUE?

- ☒ Mitosis in spermatogenesis produces two cells
- ☐ Meiosis in spermatogenesis produces two cells
- ☐ Meiosis in spermatogenesis produces four cells
- ☐ Meiosis in spermatogenesis produces one cell



If fertilization does not occur, the drop in LH hormone shuts down ----- with its hormone

- ☐ testes
- ☒ corpus luteum
- ☐ ovum
- ☐ follicle



صفحة الأسئلة

Al Aziz University

41 of 44

The longest stage of the cell cycle is \_\_\_\_\_.

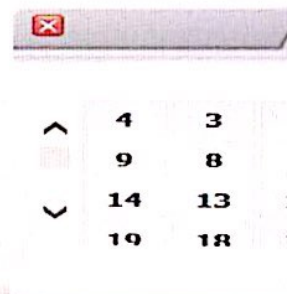
- ☒ prophase
- ☐ anaphse
- ☐ interphase
- ☐ metaphase





44 In mitosis, cells with 16 chromosomes produce daughter cells with \_\_\_\_\_.

- ☐ 8 chromosomes
- ☐ 4 chromosomes
- ☐ 16 chromosomes
- ☐ 32 chromosomes




متصفح الأسئلة

السؤال التالي >

The male human gametes called sperm are produced in the\_\_\_\_\_.

- ☐ uterus
- ☒ testes
- ☐ prostate
- ☐ ovaries

		
^	14	13
	19	18
v	24	23
	28	27



1438-57

4 Asexual reproduction in animals might involve \_\_\_\_\_.

- ☐ ovulation
- ☒ fission and budding
- ☐ spermatogenesis
- ☐ Oogenesis



9



19

24

14

19 of 44

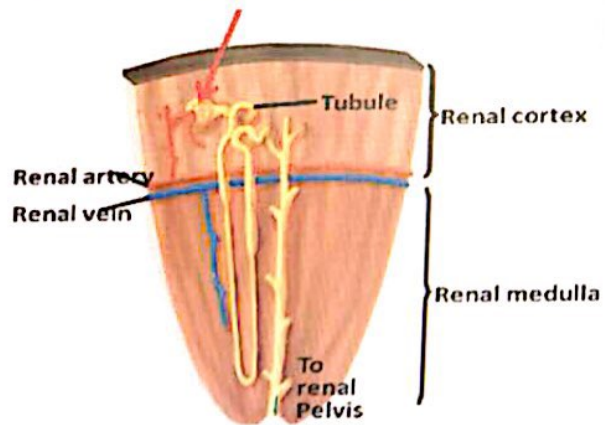
• \_\_\_\_\_ prevents the back-flow of blood.

- ☐ SA node
- ☐ Heart rate
- ☒ Heart valve
- ☐ Cardiac output



15 of 44

What is the part indicated by the red arrow of the C. Sec. kidney?




- ☐ collecting duct
- ☐ proximal tubule
- ☒ Bowman's capsule
- ☐ loop of Henle



14  
19  
24  
28

The nephron is \_\_\_\_\_ .

- ☐ called the "seminiferous tubules"
- ☐ the site of urine storage
- ☐ the site of bile storage
- ☒ the functional unit of the kidney

		
^	9	8
	14	17
v	19	18
	24	23



44

In this picture, what is the type of heat exchange with the environment that indicated by the blue arrow ?



- ☐ conduction
- ☒ evaporation
- ☐ radiation
- ☐ convection



الأسئلة				
4	3	2	1	
9	8	7	6	
14	13	12	11	
19	18	17	16	



متصفح الأسئلة

الأسئلة التالية <

سابق

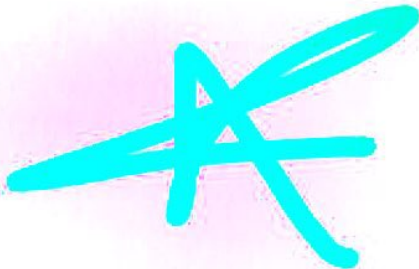
All the followings are true about saltwater fish EXCEPT \_\_\_\_\_

- ☐ Pump out excess salt
- ☐ Drink seawater
- ☐ gain water by osmosis
- ☐ lose water by osmosis



- ☒ gastrulation
- ☐ meiosis
- ☐ mitosis
- ☐ blastula formation

○ blastula formation



9	8	7
14	13	12
19	18	17
24	23	22

of 44

The first step in the formation of urine is the\_\_\_\_\_.

- ☒ filtration of water and many small solutes into the nephron
- ☐ secretion of hydrogen ions into the kidney tubules
- ☐ secretion of urea into the renal pelvis
- ☐ reabsorption of poisons by the kidney tubules



^	4	3
	9	8
v	14	13
	19	18



متصفح الأسئلة

السؤال التالي <



44 In this photo, what is the phase of miosis cell division?



- ☐ prophase II
- ☐ metaphase II
- ☐ anaphase II
- ☒ telophase II & cytokinesis

✕			
^	4	3	2
	9	8	7
v	14	13	12
	19	18	17



متصفح الأسئلة

التالي >





of 44 \_\_\_\_\_ is death of brain tissue from blocked arteries in the head.

☒ Stroke

☐ Heart murmur

☐ Atherosclerosis

☐ Heart attack

✕		
^	4	3
	9	8
√	14	1
	19	1

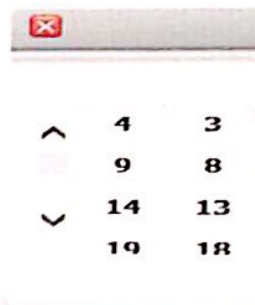


في الأسئلة

7 of 44

All the followings are true about freshwater fish EXCEPT \_\_\_\_\_

- ☒ lose water by osmosis
- ☐ excrete excess water in urine
- ☐ Uptake of salt by gills
- ☐ gain water by osmosis



متصفح الأسئلة

السؤال التالي >



44

In mitosis, cells with 16 chromosomes produce daughter cells with \_\_\_\_\_.

- ☐ 8 chromosomes
- ☐ 4 chromosomes
- ☒ 16 chromosomes
- ☐ 32 chromosomes



4	3
9	8
14	13
19	18



متصفح الأسئلة

السؤال التالي >

\_\_\_\_\_ is the first stage of embryonic development..

- ☐ Gastrulation
- ☐ Oogenesis
- ☐ Ovulation
- ☒ Fertilization



\_\_\_\_\_ is the stage of cell division in which the cytoplasm divides into two daughter cells

- ☐ Crossing over
- ☐ Mitosis
- ☐ S phase
- ☐ Cytokinesis

الأسئلة

19	18	17	16
24	23	22	21
29	28	27	26
--	--	--	--

منصف الأسئلة

السؤال التالي >

سابق

.....,prostate and Bulbourethral gland

- ☐ vas deferens
- ☐ testes
- ☐ seminal vesicles
- ☒ epididymis

..... glands contribute to semen ,which are

الأسئلة				
^	24	23	22	21
	29	28	27	26
v	34	33	32	31



منصف الاسئلة

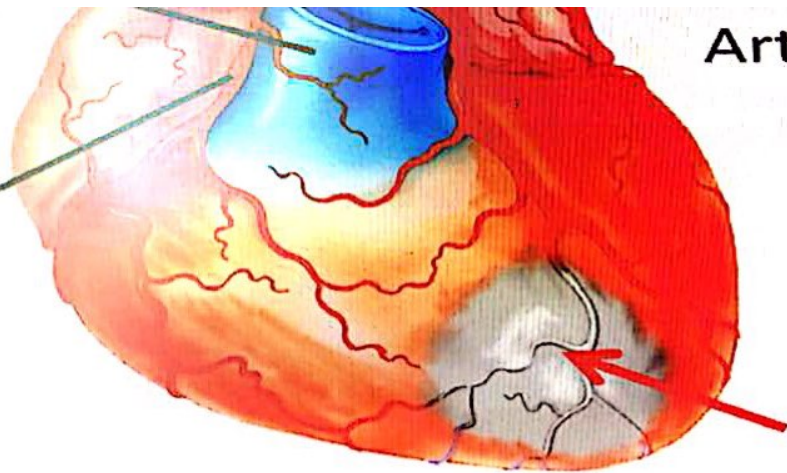
السؤال التالي <

السابق



Right  
coronary  
Artery

Artery



dead muscle

- ☐ thin walls
- ☐ narrow walls
- ☐ blockage

×		
^	29	28
■	34	33
v	39	38



متصفح الأسئلة

مقاله بالاسم

Women's \_\_\_\_\_ produce the developing eggs and sex hormones.

- ☒ ovaries
- ☐ testes
- ☐ embryos
- ☐ sperms

	29	28	27
^	34	33	32
v	39	38	37



متصفح الأسئلة

السؤال التالي <



Fertilization is the union of sperm and egg to form a \_\_\_\_\_

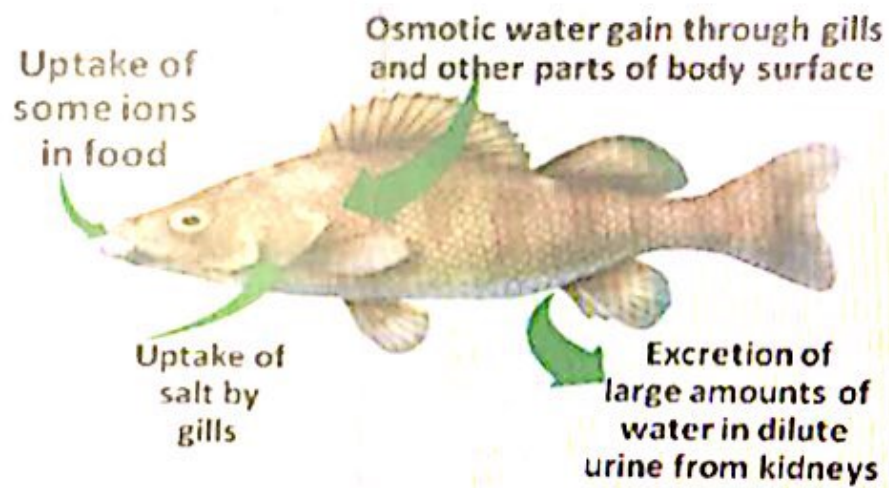
- ☒ diploid zygote
- ☐ mature follicle
- ☐ haploid cell
- ☐ corpus luteum

Erythropoietin hormone (EPO) Regulates \_\_\_\_\_

- ☐ egg production
- ☒ red blood cell production
- ☐ blood clotting
- ☐ sperm production



The fish in this picture refers to \_\_\_\_\_



- ☐ a saltwater fish
- ☒ a freshwater fish
- ☐ dirty water fish
- ☐ acidic water fish

1438-577

41 of 44

\_\_\_\_\_ reproduce by binary fission.

- ☐ plant
- ☐ Fungi
- ☐ Human
- ☒ Prokaryotes





44 In mitosis, cells with 16 chromosomes produce daughter cells with \_\_\_\_\_.

- ☐ 8 chromosomes
- ☐ 4 chromosomes
- ☒ 16 chromosomes
- ☐ 32 chromosomes



4	3
9	8
14	13
19	18



متصفح الأسئلة

السؤال التالي >

44

In mitosis, cells with 16 chromosomes produce daughter cells with \_\_\_\_\_.

- ☐ 8 chromosomes
- ☐ 4 chromosomes
- ☒ 16 chromosomes
- ☐ 32 chromosomes



4	3
9	8
14	13
19	18



متصفح الأسئلة

السؤال التالي >



The male human gametes called sperm are produced in the\_\_\_\_\_.

- ☐ uterus
- ☒ testes
- ☐ prostate
- ☐ ovaries

14  
19  
24  
28

....., prostate and Bulbourethral gland

☐ vas deferens

☒ seminal vesicles

☐ epididymis

..... glands contribute to semen, which are

الأسئلة			
^	24	23	22
	29	28	27
v	34	33	32



منصف الاسئلة

السؤال التالي <

السابق



Fertilization is the union of sperm and egg to form a \_\_\_\_\_

- ☒ diploid zygote
- ☐ mature follicle
- ☐ haploid cell
- ☐ corpus luteum

\_\_\_\_\_ is the first stage of embryonic development..

- ☐ Gastrulation
- ☐ Oogenesis
- ☐ Ovulation
- ☒ Fertilization



....., prostate and Bulbourethral gland

- ☐ vas deferens
- ☐ testes
- ☒ seminal vesicles
- ☐ epididymis

الأسئلة			
^	24	23	22
	29	28	27
v	34	33	32



منصة الأسئلة

السؤال التالي <

السابق

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Women's \_\_\_\_\_ produce the developing eggs and sex hormones.

- ☒ ovaries
- ☐ testes
- ☐ embryos
- ☐ sperms

⌕		
⌵	29	28
⌵	34	33
⌵	39	38



متصفح الأسئلة

السؤال التالي <



- ☐ egg production
- ☒ red blood cell production
- ☐ blood clotting
- ☐ sperm production

\_\_\_\_\_ occurs when excess  $H^+$  and toxins are added to the

- ☐ reabsorption
- ☐ filtration
- ☒ secretion
- ☐ excretion



\_\_\_\_\_ is the stage of cell division in which the cytoplasm divides into two daughter cells

- ☐ Crossing over
- ☐ Meiosis
- ☐ S phase
- ☒ Cytokinesis



الأسئلة

^	19	18	17	16
	24	23	22	21
v	29	28	27	26
	--	--	--	--




متصفح الأسئلة

السؤال التالي >

سابق

After cleavage, a ball of cells undergo \_\_\_\_\_; to form three-layered stage.

- ☒ gastrulation
- ☐ meiosis
- ☐ mitosis
- ☐ blastula formation

			
^	9	8	7
	14	13	12
v	19	18	17
	24	23	22



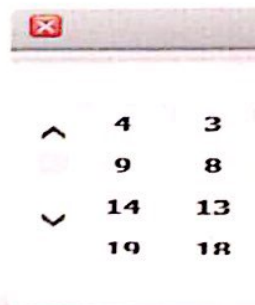
صفحة الأسئلة



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All the followings are true about freshwater fish EXCEPT \_\_\_\_\_

- ☒ lose water by osmosis
- ☐ excrete excess water in urine
- ☐ Uptake of salt by gills
- ☐ gain water by osmosis



متصفح الأسئلة

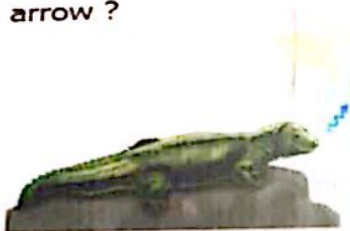
السؤال التالي >

Erythropoietin hormone (EPO) Regulates \_\_\_\_\_

- ☐ egg production
- ☒ red blood cell production
- ☐ blood clotting
- ☐ sperm production



In this picture, what is the type of heat exchange with the environment that indicated by the blue arrow ?



- ☐ conduction
- ☒ evaporation
- ☐ radiation
- ☐ convection

الأسئلة				
4	3	2	1	
9	8	7	6	
14	13	12	11	
19	18	17	16	



متصفح الأسئلة

السؤال التالي <

سابق

44 In this photo, what is the phase of miosis cell division?



- ☐ prophase II
- ☐ metaphase II
- ☐ anaphase II
- ☒ telophase II & cytokinesis

✕			
^	4	3	2
	9	8	7
v	14	13	12
	19	18	17



متصفح الأسئلة

التالي >



4 of 44

The role of (AVnode) in heart is to \_\_\_\_\_

- ☒ relays signals to the ventricles
- ☐ initiate heart beat
- ☐ control blood pressure
- ☐ control atherosclerosis



4

9

14

19



الأسئلة

All the followings are true about saltwater fish EXCEPT \_\_\_\_\_

- ☐ Pump out excess salt
- ☐ Drink seawater
- ☒ gain water by osmosis
- ☐ lose water by osmosis



4 Asexual reproduction in animals might involve \_\_\_\_\_.

- ☐ ovulation
- ☒ fission and budding
- ☐ spermatogenesis
- ☐ Oogenesis



9
14
19
24

of 44

The first step in the formation of urine is the\_\_\_\_\_.

- ☒ filtration of water and many small solutes into the nephron
- ☐ secretion of hydrogen ions into the kidney tubules
- ☐ secretion of urea into the renal pelvis
- ☐ reabsorption of poisons by the kidney tubules



^	4	3
	9	8
v	14	13
	19	18



متصفح الأسئلة


السؤال التالي >





The nephron is \_\_\_\_\_ .

- ☐ called the "seminiferous tubules"
- ☐ the site of urine storage
- ☐ the site of bile storage
- ☒ the functional unit of the kidney

		
^	9	8
	14	17
v	19	18
	24	2



19 of 44

• \_\_\_\_\_ prevents the back-flow of blood.

- ☐ SA node
- ☐ Heart rate
- ☒ Heart valve
- ☐ Cardiac output

4 In Mendel's F<sub>2</sub> generation, one out of four plants had white flowers because \_\_\_\_\_

- ☒ both parents were heterozygous purple
- ☐ both parents were heterozygous white
- ☐ one parent was homozygous recessive
- ☐ one parent was heterozygous purple



9



14



19



24



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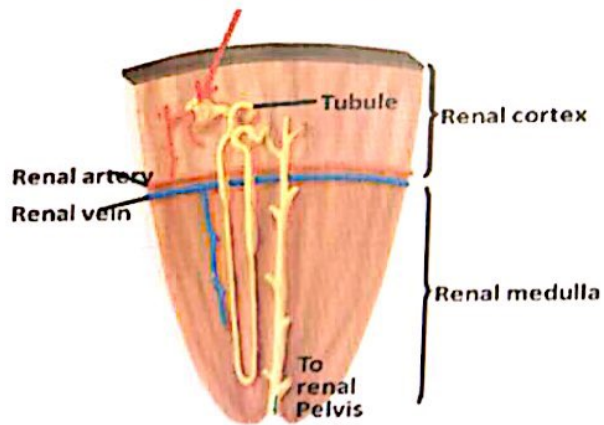
\_\_\_\_\_ reproduce by binary fission.

- ☐ plant
- ☐ Fungi
- ☐ Human
- ☒ Prokaryotes



15 of 44

What is the part indicated by the red arrow of the C. Sec. kidney?



- ☐ collecting duct
- ☐ proximal tubule
- ☒ Bowman's capsule
- ☐ loop of Henle



14



19



24



28