

9 December 2017

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

# د . جمال الشعراوي

تست / خرد

جزء ١

## Chapter (9):- Gas exchange



Biology



Biology

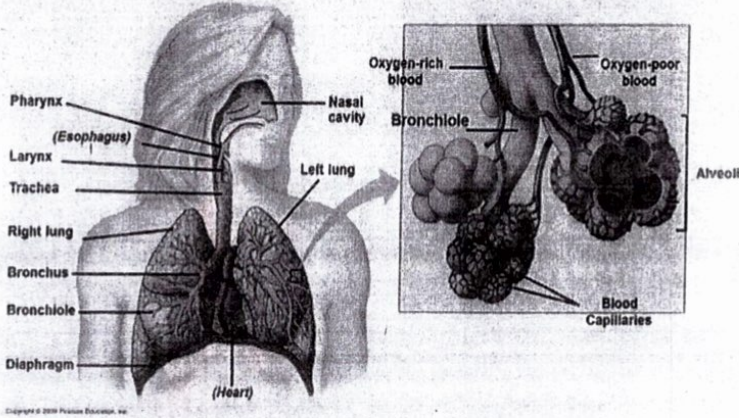


Biology



Biology

Biology



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

جدة

كيمياء حيوية للكليات الطبية

احياء



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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 \_\_\_\_\_ المدخنين 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 من  
☐ 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

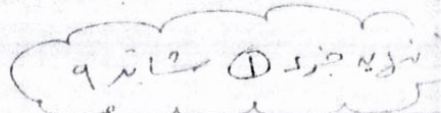
- ☒ A) Bicarbonates ions  
☐ B) Carbonyl  
☐ C) Carbon monoxide  
☐ D) Carbonate

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 \_\_\_\_\_ (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 الدفاع
- D) blood pressure

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 والنجم



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

X ☐ Occurs in eukaryotic cells

☒ means dividing in half

☐ produces two different cells from one cell

X ☐ 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

X ☐ Insects الحشرات

☒ External fertilization

☒ Internal fertilization

X ☐ All other answers are correct

X ☐ 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

X ☐ 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 كرميات  
☒ 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







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>

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✓ 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





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

✓ homologous chromosomes separate  
✓ haploid cell is produced

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

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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

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