

Revision Chapter-1 : Chemistry of organic molecules

① CARBOHYDRATES

الكربوهيدرات

بالمجموعة

بنية

- Carbohydrates characterized by group = $H-C-OH = C:H:O$ ratio of 1:2:1
وظيفة
- The function of carbohydrates = The main source of energy.
مصدر رئيس للطاقة
- Monomers of Carbohydrates = Monosaccharide = One ring of sugar (for energy=ATP).
وحدة بناء حلقة واحدة السكر الأحادية
- The five carbon Monosaccharide = Pentose sugar = Ribose, Deoxyribose
خماسية الكربون
- The six carbon Monosaccharide = Hexose sugar = Glucose, Fructose, Galactose
سداسية الكربون
- Disaccharides = Two rings of sugar = formed by dehydration reaction = Maltose,
تفاعل تخلص الماء تتكون بواسطة حلقتاه السكر الثنائية

Sucrose, Lactose - Lactose (milk sugar) = (Glucose + Galactose)

- (Glucose + Glucose) = Maltose = in germinating seeds
البذور النابتة
- (Glucose + Fructose) = Sucrose = in Plants (sugarcane, sugar beet), used as
الشمندر سكر قصب السكر
table sugar = sugar we use at our home.
سكر المائدة
- Polysaccharides = polymers of monosaccharide's, = by dehydration reaction
عديد من
- Energy storage polysaccharides = Starch (in plants, potato, wheat, corn, rice),
ذرة قمح
المنشأ السكر العديدة المخزنة للطاقة

Glycogen (in animal liver and muscle cells)

- Structural Polysaccharides = Cellulose (in plant cell wall), Chitin (exoskeleton in insects,
الحشرات صيقل
جدار الخلية
السكار العديدة التركيبية
القطريات
Crustaceans and Fungi.

② LIPIDS (Long time energy storage)

Lipids = characterized by group = $H-C$, Not dissolved (insoluble) in water (hydrophobic),
لديزوبه غير محبته

- Fats (Triglyceride) = glycerol + 3 fatty acids
جليرول الدهون الثلاثية

Two types of fatty acids:-
نوعان

- Saturated fatty acids = no double (single) bonds, solid = associated with cardiovascular
بأمراض الجواز الدوري مرتبطة صلبة روابط مضردة أحماض دهنية مشبعة
الزبد دهون حيوانية
disease = Animal fats, Butter.

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حقائق ومفاهيم هامة

- Nitrogenous Bases of RNA = Adenine (A), Guanine (G), Cytosine (C) and Uracil (U)
غير موجود اليوراسيل بينما غير موجود الثايمين
In RNA Thymine (T) base is not found **while** In DNA Uracil (U) base is not found.

CHAPTER 2: CELL STRUCTURE AND FUNCTION

The Cell: All organisms are composed of cells = basic units of structure and function.
المخلوقات كل مكونة من وصيات أساسية والوظيفة خلايا بدائية الغاية

Ⓐ Prokaryotic Cells:

- Lack nucleus = Bacteria and Archea
نواة لا توجد
- Shapes of bacteria = 3 types : Rod = Bacillus / Spherical = Coccus,
أشكال 3 أنواع عمودية كروية
- Spiral and rigid = Spirillum / Spiral and flexible = Spirochetes.
حلزونية ثابتة حلزونية مرنة
- Plasma membrane / Cell membrane = regulate entry and exit of molecules.
غشاء بلازمي الجزيئات خروج دخول ينظم
- Cell wall = Peptidoglycan, support and protect cell.
جدار الخلية بيتيدوجليكسان دعم حماية
- Bacteria have Nucleoid = DNA = have Circular DNA = Plasmid
منطقة نووية حلقي بلازميد
- Inclusion body = store nutrients, Flagellum = Pushes cell forward (Movement)
جسم تخزيني المواد الغذائية يخزنه السوط الحركة للأمام الخلية يدفع

Ⓑ Eukaryotic Cells

① Nucleus

- Command center of the cell.
مركز القيادة
- The nucleus has double membrane called nuclear envelope which has nuclear pores.
النوية مزدوج غشاء خلايا نووية ثقبوب نووية
- Nuclear membrane consists of phospholipids.
- The nucleus contains chromatin or chromosomes (DNA + Protein) in nucleoplasm.
كروماتين
- Chromosomes have Genes composed of DNA, are units of heredity.
مكونة من جينات الوراثة وحدة
- Three types of RNA produced in nucleus:
ثلاثة أنواع تنتج
- 1. Ribosomal RNA (rRNA) = produced in the nucleolus.
الريبوسومي ينتج النوية
- 2. Messenger RNA (mRNA) 3. Transfer RNA (tRNA).
المراسل الناقل

- سوره جبرائيل مشيخه
- (ط) Unsaturated fatty acids = Double bonds, Liquid = Plant oils.
عسنا و بلازميه تنالي الطبقات
- Phospholipids = form Phospholipid bilayer of Plasma (cell) membrane
الرصوره المصفرة تكون
 - Steroids = four fused Carbon rings = Cholesterol, Testosterone and Estrogen.
الستيرويدات هملقات كربون ملتحه
 - Waxes = for protection. [cell membrane; Phospholipids + Steroids]
الشوع للحمايه

③ PROTEINS

- أحماض أمينية
- Monomers of protein = Amino acids = 20 types of amino acids = called building blocks
 - Simplest amino acids = Glycine, Leucine, Serine, Aspartic acid.
أسط
 - Amino acid is characterized by group = $\text{NH}_2 - \text{COOH}$
 - Proteins are important for structure and function of the cell.
والوظيفة للتركيب هـ
 - The most important role of proteins is as enzymes.
الدور الذهم
 - Hemoglobin is a transport protein = Transport Oxygen.
بروتين ناقل
 - Defense protein = Antibodies
دفاعي أجسام مضادة
 - Structural protein = Keratin (form hair & nail).
الأنفاس الشعر كيراتين
 - Amino acids are joined by = Peptide bond.
رابطه ببتيدية ترتبط بواسطه الأحماض الأمينية

④ NUCLEIC ACIDS:

- بوليمرات غنية بالمعلومات نيوكليوتيدات
- Information rich polymers of Nucleotides.
 - Each nucleotide is composed of phosphate, pentose sugar and nitrogen base.
تتكونه من ① ② ③
 - A nucleotide without phosphate is called as nucleoside (sugar + nitrogen base)
بدون نيوكليوسيد
 - DNA = Deoxyribonucleic acid, Double stranded, sugar is Deoxyribose.
شريط مزدوج
 - RNA = Ribonucleic acid, Single strand, sugar is Ribose.
شريط مفرد
 - Nitrogenous Bases of DNA = Adenine (A), Guanine(G), Cytosine(C) and Thymine(T)
 - Adenine (A) always pairs with thymine (T) = by double bond $\text{T} \cdots \cdots \text{A}$
رابطه مزدوجة
 - Cytosine (C) always pairs with guanine (G) = by triple bond $\text{C} \cdots \cdots \text{G}$
ثلاثية

عضلية هيكلية رواة من أكثر
- Skeletal muscle cells can have more than one nucleus

الريبوسومات

② Ribosomes

تتكون من لبناء الريبوسوم
For protein synthesis = composed of two subunits.

عديد الريبوسوم
Two types: 1. Free ribosomes (occur freely) 2. Polyribosomes (occurs in group)

جهاز الانتمشية الداخلي

③ THE ENDOMEMBRANE SYSTEM

حويصلات
تتكون من
Consist of: Nuclear envelope, endoplasmic reticulum, Golgi apparatus, vesicles.

الشبكة الاندوبلازمية

A. ENDOPLASMIC RETICULUM (ER): Two types:

- خشنة
1. **Rough ER:** - Ribosomes attached, produce proteins, and make glycoproteins
ملساء
2. **Smooth ER:** Ribosomes not attached, produce lipids, in testes produces a steroid hormone testosterone, in liver detoxify drugs

B- GOLGI APPARATUS

- اكتشف
- Discovered by **Camillo Golgi** in 1898
حويصلات
- Consists of saccules that have vesicles at edges.
حويصلات
- Sorts modified molecules and packages them into vesicles.

C. LYSOSOMES

- تنتج
- Produced by Golgi apparatus.
تخزن
- Store hydrolytic enzymes to digest materials in the cell
تدمر
- Destroy non- functional organelles.
تعضن
- In white blood cells they digest bacteria (for cellular digestion)

④ VESICLES AND VACUOLES

A. PEROXISOMES

- يُنتج
- Produce hydrogen peroxide (H_2O_2)
تتجزئ
- Synthesis and breaking of lipids, produce bile salts in liver.

CO₂ تطلقه O₂ تتقدم تفاعلات تقوم به
- Carry out a reaction that uses oxygen and releases carbon dioxide

الفجوات

B. VACUOLES:

المويصلات من أكبر أكياس غشائية
- Membranous sacs larger than vesicles.

المواد الغذائية كفتت الفجوات العاضة / الماء الفائض تزيل الفجوات المنقبضة
- Contractile vacuoles remove excess water / Digestive vacuoles break down nutrients

الفجوة المركزية

PLANT CELL CENTRAL VACUOLE

تأخذ حجم الضغط الهيدروستاتيكي تضبط
- Take 90% volume of cell = Maintains hydrostatic pressure.

فصلت مواد غذائية ملح سكر ماء العصارة تحتوي
- Contain (sap) water, sugars, salts, nutrients and waste products.

ألوان أصباغ
- Have pigments give colors.

للحماية سامة
- Have toxic substances protection.

عضيات مرتبطة بالطاقة

5 THE ENERGY RELATED ORGANELLES

الكلوروفيل تحتوي البناء الضوئي البلاستيدة الخضراء
A CHLOROPLAST: Perform Photosynthesis, contains chlorophyll.

ثاني أكسيد الكربون طاقة شمسية
• Photosynthesis needs = Solar energy + Carbon dioxide + Water

المستروما
- Stroma contains DNA, ribosomes, enzymes.

التايلاكويد أقراص تمتص الجران
- Granum capture solar energy = stacks of thylakoids.

البلاستيدات أنواع أخرى
• Other Types of Plastids:

الألوان مسؤولة عن البلاستيدات الخضراء
1. Chromoplasts responsible for the colors.

الزيون النشا تخزنه تبني بلاستيدات شفافة البلاستيدات الشفافة
2. Leucoplasts are colorless plastids = synthesize and store starches and oils.

ميتوكوندريا بيت الطاقة تنفس خلوي
B MITOCHONDRIA: - Perform Cellular Respiration = Power house of the cell.

نشاط الخلية حسب
- Number of mitochondria can vary depending on their activities.

ماتركس تغلف أعرف الغشاء الداخلي
- The inner membrane form cristae encloses matrix

- Matrix contains mitochondrial DNA, ribosomes, enzymes.

تنتج
- Produce ATP (energy) for the cell.

دورة الخلية
• **The Cell Cycle:** Set of stages that takes place between two successive cell divisions.

• **Two portions of cell cycle:**
الطور البيني
و طائفا
تقوم به

1. **Interphase:** When cell performs its usual functions, it takes 90% of the cell cycle
المراحل

Consists of 3 stages G1 –S–G2
مرحلة النمو الأول

G1 Stage: Cell increases in size, doubles its organelles.
عضيات
تضاعف الحجم تزيد
مرحلة البناء

S Stage: DNA synthesis or replication occurs
تضاعف بناء
بعد مرحلة النمو الأول

G2 Stage: After DNA replication to the onset (preparation) of mitosis
المرحلة المتيزي النووي
الانتظام الخلوبي

2. **M (Mitotic) Stage = Mitosis (karyokinesis /nuclear division) + Cytokinesis (division of cytoplasm).**
المرحلة السيتولازم

3. **Eukaryotic Chromosomes:** DNA + Histone proteins
هستون
البروتينات في حبيبات النواة

• Chromosome number = full or **diploid (2n) number** = includes two chromosomes of each kind (in human = 46 Chromosomes)
عدد الكروموسومات
في الانسان

• Half the diploid number, called the **haploid (n) number** of chromosomes, sperm and egg cells are haploid. (in human = 23 Chromosomes)
النصف
العدد النصف

• **Mitosis:** 1 mother cell produces two diploid = Mitosis permits growth and repair
تكوين اثنى بالعمو
بمسح

• **Phases of Mitosis**
المرحلة

1. Prophase
2. Prometaphase
3. Metaphase
4. Anaphase
5. Telophase

1. **Prophase:**
Chromatin becomes chromosomes.
تختفي
Nucleolus disappear and nuclear envelope fragments.

2. **Prometaphase:** Kinetochores appear.

3 **Metaphase:** Chromosomes arrange at metaphase plate (the center of the cell).
تصطف
في منتصف مركز

باتجاه تتحرك كروموسومات جديدة لتصبح تنفصل الكروماتيدات الشقيقة الطور الانقسام
4. **Anaphase:** Sister Chromatids part and become daughter chromosomes, move toward

الأقطاب
the spindle poles.

تظهر النوية الغلاف النووي تختفي
5. **Telophase:** Spindle disappears, nuclear envelopes, nucleolus appears in each

daughter cell.

• **Cytokinesis:** Division of the cytoplasm

- If mitosis occurs but cytokinesis doesn't occur the result is a multinucleated cell

- In animal cells by cleavage furrow formation

- In Plant Cells by cell plate formation

• **Prokaryotic cell division takes place by binary fission** (Bacteria and archaea)

Chapter-4: Meiosis and Sexual Reproduction

• The reductive division that occur in gonads is = Meiosis

• Zygote results from fusion of = Gametes.

• Spermatogenesis occurs within = The testes = For produce sperms.

• Oogenesis occurs within = The ovary = For produce eggs.

• Gametophyte is = The haploid generation of the plant.

• Sporophyte is = The diploid generation of the plant.

• Meiosis require = Two nuclear divisions , produces four haploid cells.

• The number of chromosomes is diploid (2n) in = Zygote.

• The number of chromosomes is haploid (n) in = Sperms , Eggs.

• Exchange of genetic material between non-sister chromatids = Crossing over.

• Crossing over occurs at = Prophase I

• Meiosis occurs at = tests , ovary = produces eggs and sperm

العبرور خلال يحدث التنوع الوراثي
• The genetic variation takes place through = Crossing over.

الكروموسومات المتماثلة زوج الكروموسومين طما عليه
• A bivalent is = The paired homologous chromosomes, from male and female.
الخلية البيضية الأولية انتاج لبيوضاً أثناء
• During oogenesis, the primary oocyte has the Diploid number and the secondary

oocyte has haploid number of chromosomes.

العوامل الجسيم البلائل المتقابلة
• Alternate forms of a gene are called = Alleles

الطولاء كواثر لثاني بعد قناة البيض تدخل المبيض تتحرك البويضة
• The egg leaves the ovary and enters an oviducts after = Metaphase-II

جزءه
• Meiosis in males is a part of = Spermatogenesis

• Meiosis in females is a part of = Oogenesis

عملية الإخصاب بعده تكتمل لف عملية إنتاج لبيوضات
• Oogenesis will not go to completion unless = Fertilization occurs.

عزيزي الطالب :

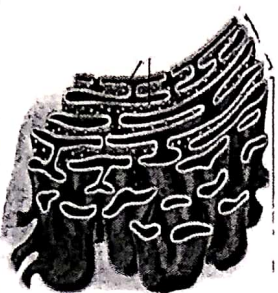
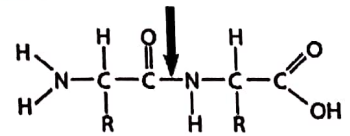
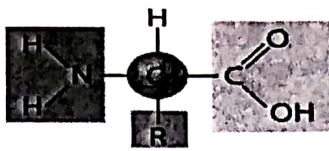
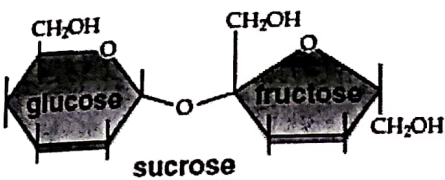
• احرص على حل جميع اختبارات
المراجعة النهائية الخاصة
باختبار المييد الأول .

• احرص على حل جميع الاختبارات
الإلكترونية المرسله إليك
عبر رقم الواتس المسجل .

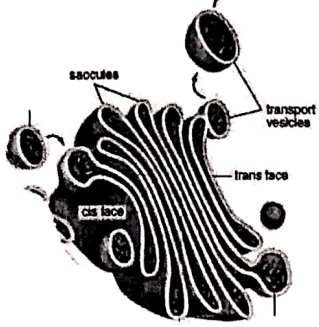
وفقكم الله

د. عبدالزاق النويج

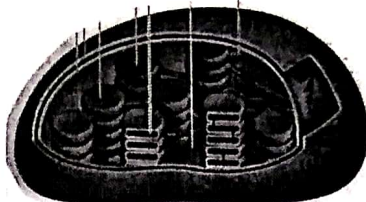
الأشكال العلمية الهامة



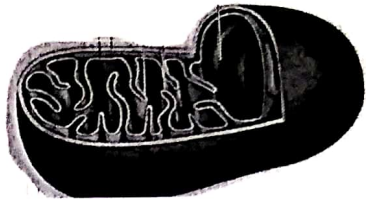
Endoplasmic reticulum



Golgi Apparatus

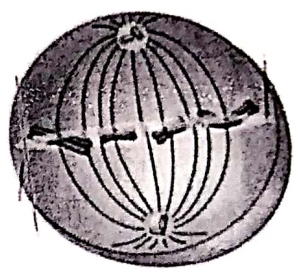
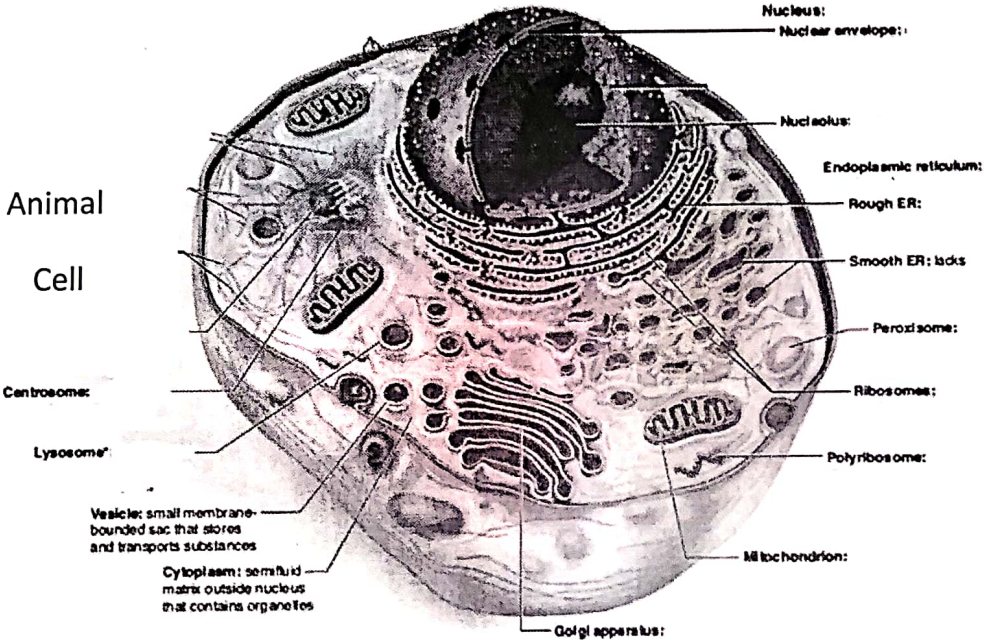


Chloroplast

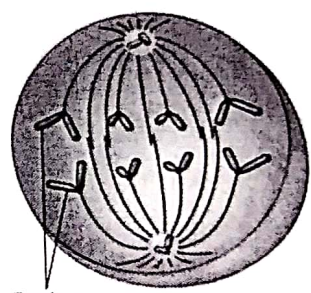


Mitochondria

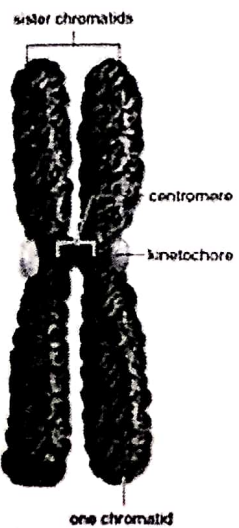
Animal Cell



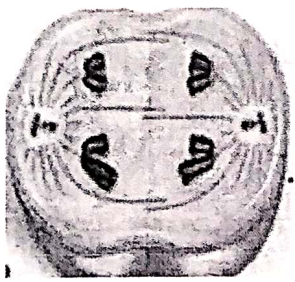
Metaphase of Mitosis



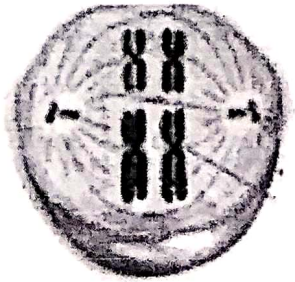
Anaphase of Mitosis



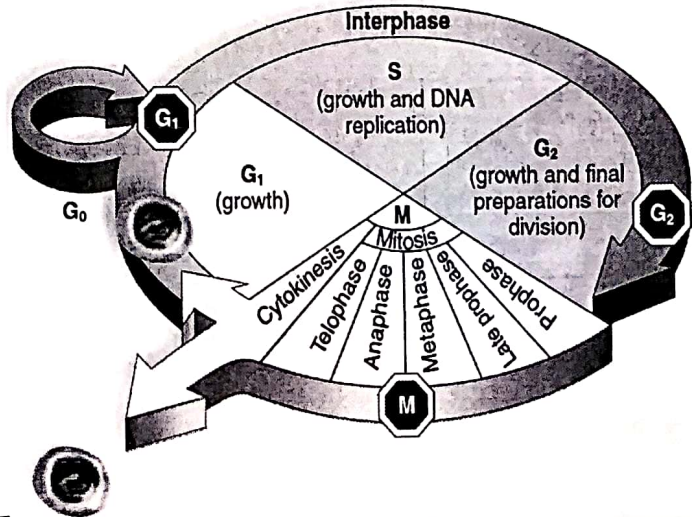
Chromosome



Anaphase of Meiosis



Metaphase of Meiosis



The Cell Cycle

Chapter-5: Circulation and Cardiovascular System

القلب: الوريدات
 الوريدات: الوريدات
 الوريدات: الوريدات

Circulatory System: transports oxygen and nutrients to the cells.
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 الوريدات: الوريدات

All vertebrates have Closed Circulatory System
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 الوريدات: الوريدات

Blood vessels: Arteries: carry blood away from the heart, Veins: return blood to the heart, Capillaries: exchange materials with tissue fluid.
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Human Heart lies in pericardium, inner surface is lined with endocardium, Septum separates heart into right and left side.
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 الوريدات: الوريدات

Human Heart has 4 Chambers, two upper = atria (receive blood)
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two lower thick walled called ventricles (pump blood)
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Human Heart has 4 Valves, 2 Atrioventricular Valves between atria and ventricles:
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 الوريدات: الوريدات

Right side = tricuspid (has three cusps), Left side = bicuspid or mitral (has two cusps).
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 الوريدات: الوريدات

2 semilunar valves (half-moons like) - Pulmonary Semilunar Valve = between right ventricle and pulmonary trunk, Aortic Semilunar Valve = between left ventricle and aorta
 الوريدات: الوريدات
 الوريدات: الوريدات

Coronary artery supplies blood to the heart in the myocardium.
 الوريدات: الوريدات
 الوريدات: الوريدات

Path of Blood: includes two major circular pathways:
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 الوريدات: الوريدات

1- Pulmonary circuit: in Lungs
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 الوريدات: الوريدات

2- Systemic circuit: in Body.
 الوريدات: الوريدات
 الوريدات: الوريدات

Right atrium → atrioventricular valve (the tricuspid valve) → right Ventricle
 الوريدات: الوريدات
 الوريدات: الوريدات

pulmonary semilunar valve → pulmonary trunk and two pulmonary arteries → lungs
 الوريدات: الوريدات
 الوريدات: الوريدات

Pure Blood (O₂) → four pulmonary veins → left atrium → the bicuspid or mitral valve → left ventricle → aortic semilunar valve → aorta → body tissues → superior vena cava and inferior vena cava → right atrium.
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Heart beat = Systole + Diastole, Normal = 70-times per minute
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Systole = contraction of the heart chambers, Diastole = relaxation of heart chambers
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Functions of the blood: Transports gases, nutrients, waste products, hormones, Destroy pathogens, immunity, maintain water, pH and body temperature.
 الوريدات: الوريدات
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Human Blood has two main portions: 1- Plasma: Liquid part contains nutrients, wastes, salts, and proteins. 2- The formed elements- (blood cells).
 الوريدات: الوريدات
 الوريدات: الوريدات

Red blood cells (Erythrocytes): small, biconcave disks, lack nucleus, contain hemoglobin carries oxygen or carbon dioxide, If RBCs low individual suffers from anemia, 6 million RBCs per cubic mm, manufactured in red bone-marrow, life 120 days.
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 الوريدات: الوريدات

- **White blood cells (Leukocytes):** large, have nucleus, Defend against diseases, مضادة للتهابات
- **5 types:** Neutrophils and Monocytes = phagocytes and anti-inflammatory.
- **Lymphocytes** = develop immunity, Eosinophils = anti-allergic and parasitic infections
- **Basophils** = contain anticoagulant heparin.
- **Platelets (Thrombocytes):** Formed from megakaryocytes in red bone marrow, blood contains 150,000 - 300,000 per mm³, involved in blood clotting, or coagulation.

Chapter-6: Digestive System

- **Function of digestive tract** = ingests food, breaks food down, absorbs nutrient, eliminates remains.
- **Human digestive tract** = Mouth → Pharynx → Esophagus → Stomach → Small intestine → Large intestine.
- **Mechanical digestion:** Chewing in mouth, Churning, Mixing in stomach and small intestine.
- **Human Digestive Tract:** Complete, begins with Mouth and ends in Anus.
- **The mouth (oral cavity):** palate (roof of the mouth) separates oral cavity from nasal cavity, fleshy uvula is posterior extension of soft palate, food mixed with saliva by tongue, saliva received from 3 pairs of salivary glands (parotid, sublingual and submandibular).
- **Pharynx:** both digestive and respiratory passages come together in it.
- **Epiglottis** closes air passages during swallowing.
- **Esophagus:** takes food to the stomach, Peristalsis for movement of food.
- **Stomach:** thick walled, lies on left side, four parts (Fundus, Cardia and Pylorus), 3 layers of smooth muscles: outer: longitudinal, middle: Circular, inner: Oblique. Stomach has gastric juice which has acidic medium due to HCl (pH=2).
Secretes pepsinogen which converts to pepsin by HCl.
- **Small intestine:** length = 6 m, the first 25 cm called Duodenum (A duct brings bile from liver, and pancreatic juice from pancreas), wall contains 4 layers (Mucosa, Submucosa, Muscularis, Serosa), finger like projections called villi for food absorption.
Each villus has thousands of microvilli.
Small intestine has basic medium due to sodium bicarbonate (NaHCO₃).

المستقيم ③ القولون ④ الانحور ⑤ تتكون من الطول
 Large intestine: 6.5 cm diameter, 1.5 m length, consist of Cecum, Colon, Rectum, and

Anus, absorbs water, salts, and vitamins, stores undigested material.

cecum has small projection called vermiform appendix.

• Accessory digestive organs: pancreas, liver and gallbladder.

• The pancreas: secretes insulin and glucagon hormones keeping blood glucose normal

and produces digestive enzymes. ex. trypsin, amylase,...

• Liver: largest gland.

• Hepatic portal vein transports nutrients from intestines to liver.

• Functions: Detoxification, stores glucose as glycogen, produce urea and bile, regulate blood cholesterol level.

• Gallbladder: Stores bile

• Digestive Enzymes:

▪ The digestion of starch begins in the mouth.

▪ Protein digestion begins in the stomach.

- ① {
- Starch (by salivary amylase) (mouth) $\xrightarrow{H_2O}$ maltose [in the mouth]
 - Starch (by pancreatic amylase) (Small int.) $\xrightarrow{H_2O}$ maltose [in the small intestine]
 - Maltose (by maltase) (Small int.) $\xrightarrow{H_2O}$ glucose + glucose -----(absorbed)
- ② {
- Protein (by pepsin) (stomach) $\xrightarrow{H_2O}$ peptides
 - Protein (by pancreatic trypsin) $\xrightarrow{H_2O}$ peptides
 - Peptides (peptidases) $\xrightarrow{H_2O}$ amino acids -----(absorbed)
- ③ {
- Fat (by bile salts) \rightarrow fat droplets
 - Fat droplets (by lipase) (Small int.) $\xrightarrow{H_2O}$ glycerol + fatty acids -----(absorbed)

Chapter-7: Respiratory System

• Respiration has two parts:

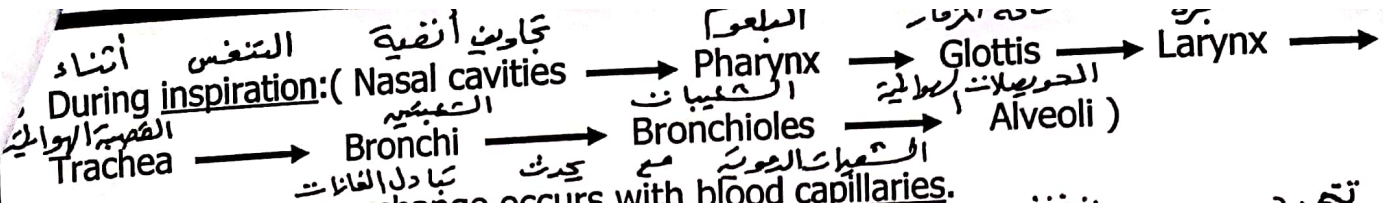
1. External respiration: Gas exchange between air and blood in lungs.

2. Internal respiration: Gas exchange between blood and tissue fluid.

• Lungs: the main respiratory organ in Human.

• Inspiration = Inhalation = Air comes in the lungs.

• Expiration = Exhalation = Air rushes out from lungs.



- **Alveoli**: where gas exchange occurs with blood capillaries.
- During **inspiration**: the rib cage goes **up and out**, diaphragm **lowers**, lungs expand.
- During **expiration**: the rib cage goes **down and in**, diaphragm **rises (up)**, lungs constrict.
- **Bronchitis**: **airways** are inflamed due to infection, coughing brings up mucus and pus.
- **pneumonia**: **alveoli** fill with pus and fluid, making gas exchange difficult.
- **Pulmonary tuberculosis**: tubercles encapsulate bacteria, elasticity of lungs is reduced.
- New strains of tuberculosis are resistant to the usual antibiotic therapy.
- **pulmonary fibrosis**: **fibrous** connective tissue builds up in lungs.
- **Emphysema**: alveoli burst and fuse into enlarged air spaces.
- **Asthma**: air way are inflamed due to irritation, and bronchioles constrict.
- **Lungs cancer**: occurs by **smoking**.
- Major lung disorders due to **cigarette smoking**.
- In **chronic bronchitis**, mucus is common, and the **cilia** are gone.
- **Emphysema** and **lung cancer** occurs due to smoking of **cigarettes**.

Chapter: 8: The Human Nervous System

- Three specific functions:
- Receives sensory input. (2) Performs integration of CNS. (3) Generates motor output
 - **Nervous System** Consists of:
 - The central nervous system (CNS): consists of **brain** and **spinal cord**.
 - **Brain**: has **four** main parts: Brain stem + midbrain, Diencephalon, Cerebellum and Cerebrum.
 - The **Peripheral Nervous System (PNS)**: consists of (12) pairs **cranial** and (31) pairs **spinal** nerves and ganglia.
 - (i). **Somatic Nervous System (SNS)**: Provides **voluntary** control over **skeletal** muscles.
 - (ii). **Autonomic Nervous System (ANS)**: controls **smooth** muscle, **cardiac** muscle, **glands**.
 - divided into **sympathetic** and **parasympathetic**.
 - **Sympathetic nerves**: **Increase** heart rate, **Raise** blood pressure.
 - **Parasympathetic nerves**: **Slow** heart rate, **Increase** glandular secretions (**digestion**).

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حقائق هامة

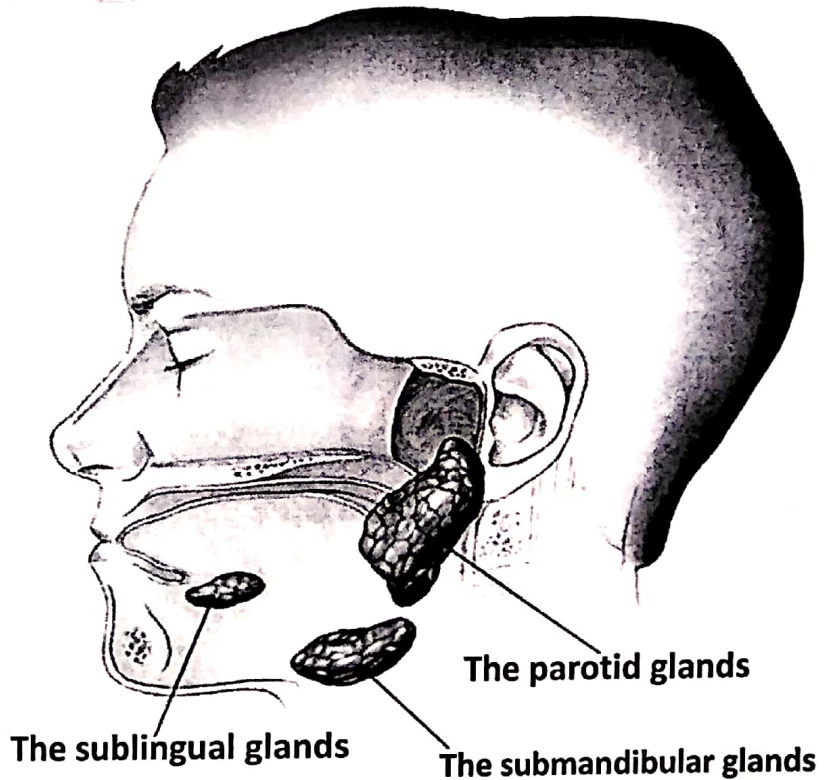
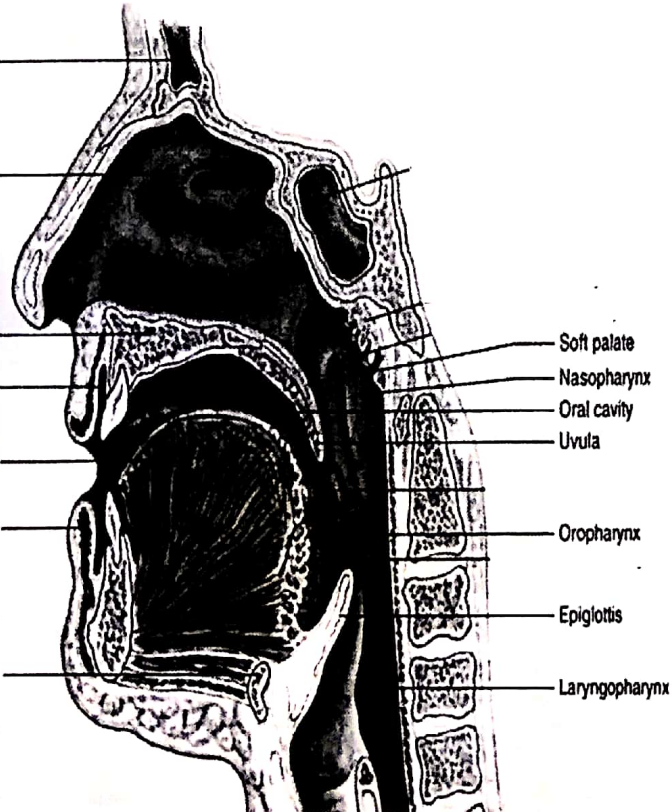
النسيج العصبي Nervous Tissue

تتكون وحدة وظيفية

Neurons or Nerve cells: Functional units, consist of three parts:

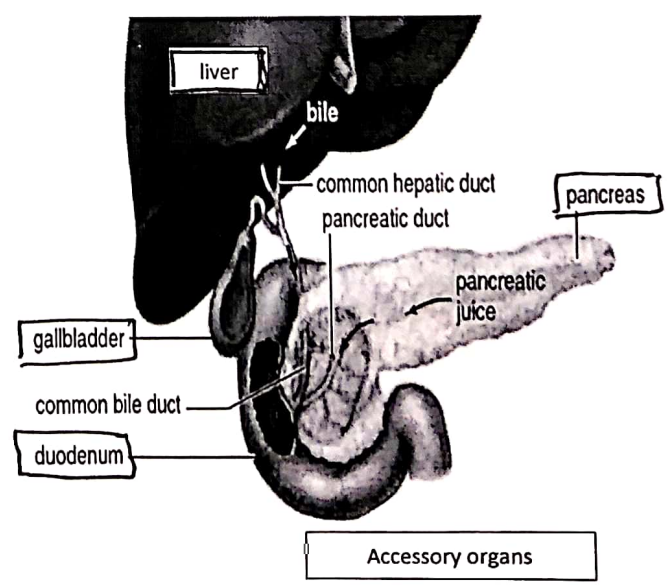
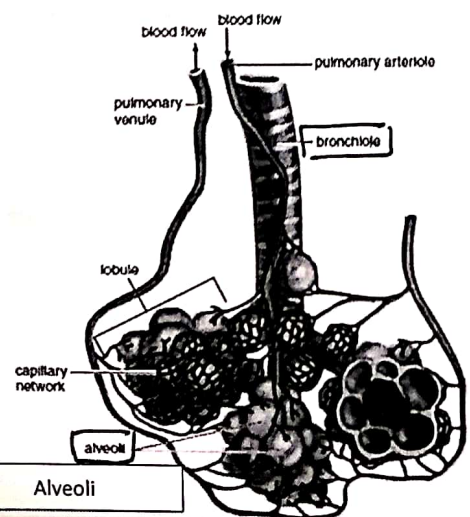
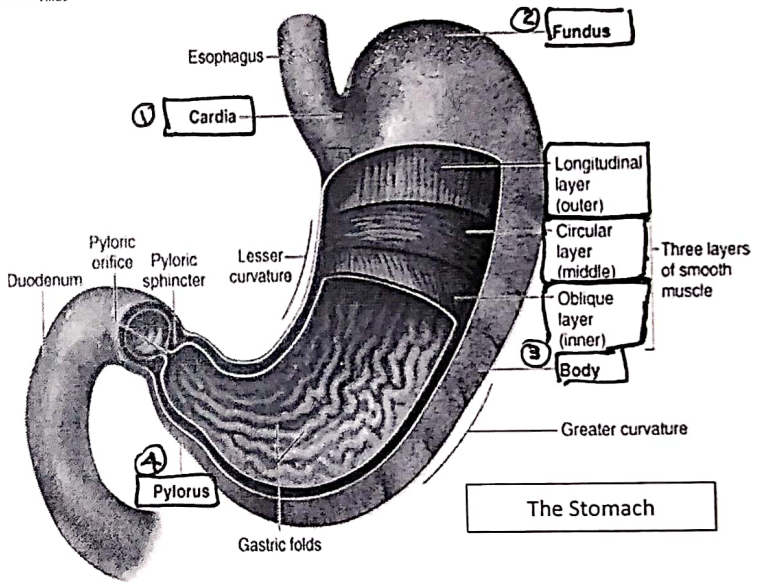
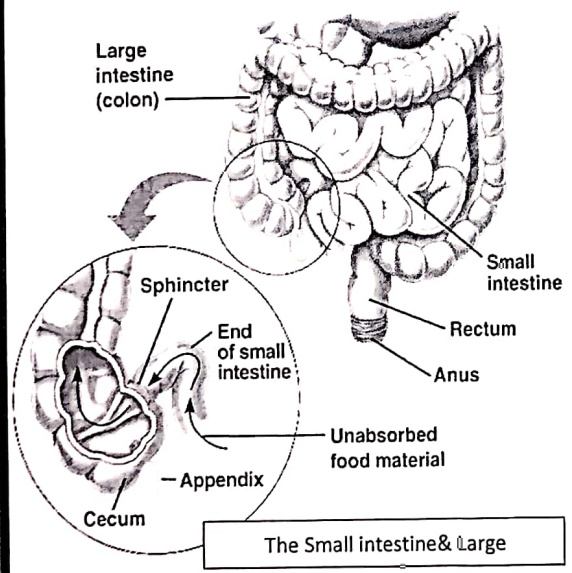
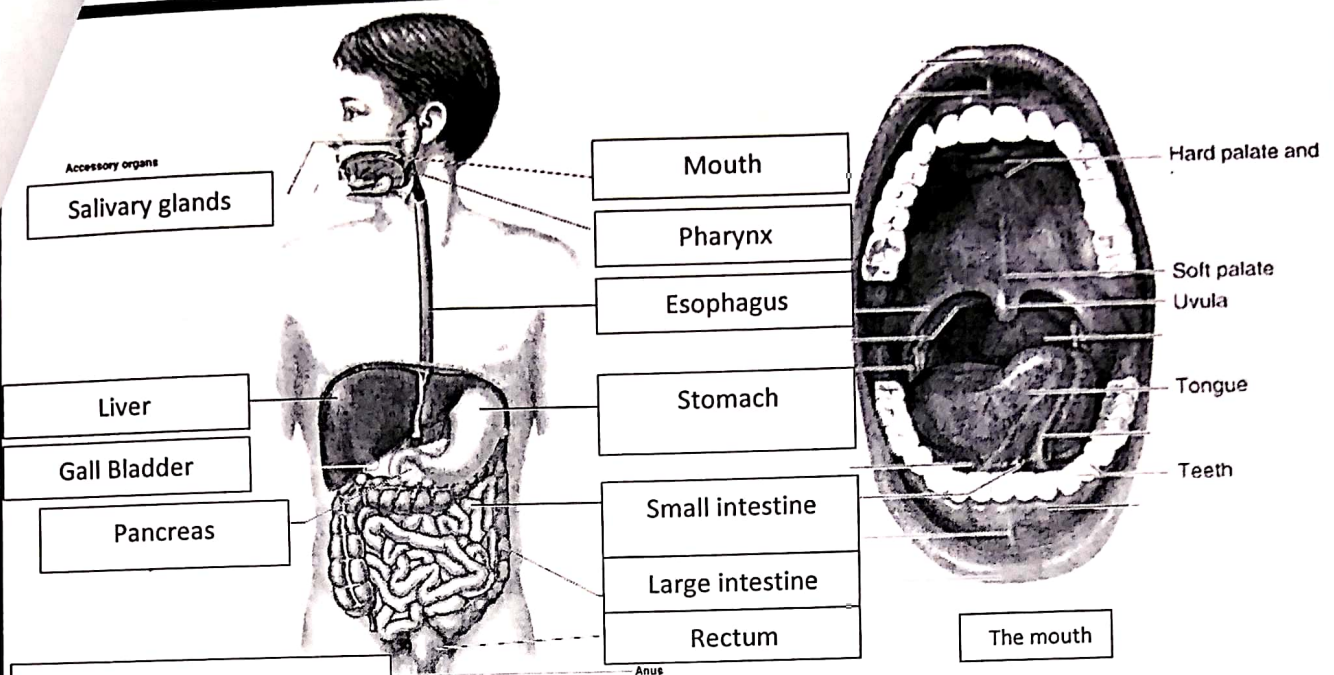
- ① Cell body: have nucleus and organelles.
جسم الخلية: نواة بها عضيات
- ② Dendrites: receive signals and transmit to cell body.
الجس الخلية وتنقلها
- ③ Axons: convey information to another neuron or to other cells, form nerves, covered by white insulating layer called myelin sheath which formed by Schwann cells.
المعلومات توصل المواد الحليمات
تغطي العصب تكون خلايا شوان يتكونه خلايا شوان
طبقة عازلة بيضاء غلاف مايليه
- In PNS, Schwann cells have gaps called nodes of Ranvier.
رانشية
- Types of Neurons:
أنواع
- Sensory (afferent) neurons: take nerve impulses from sensory receptors to the CNS.
المستقبلات الحسية من السمات الحسية تأخذ الخلية العصبية الحسية
- Interneurons: only in central nervous system
البينيك
- Motor (efferent) neurons: take nerve impulses from the CNS to muscles or glands, have many dendrites and a single axon.
الحركية الغدد العضلات
- Neuroglia or Glial cells: Support and nourish neurons.
تغذي خلايا الغراء العصبي تدعم

أشكال علمية هامة

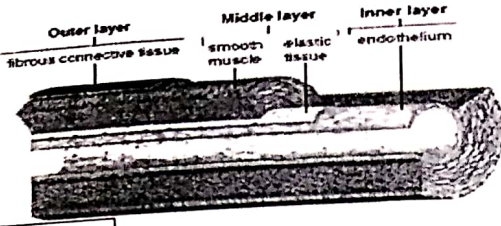


Salivary glands

الغدد اللعابية



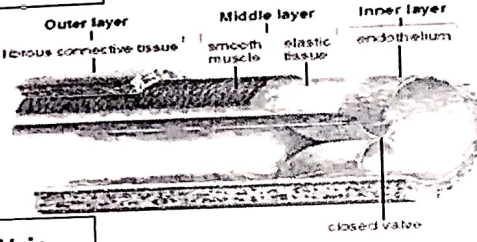
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Artery

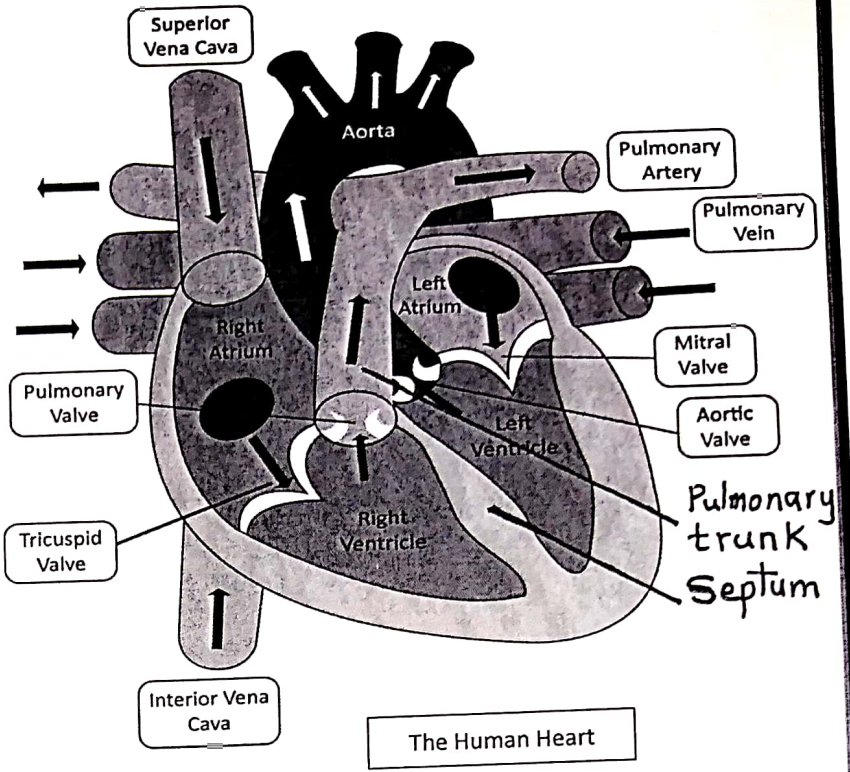


Capillary

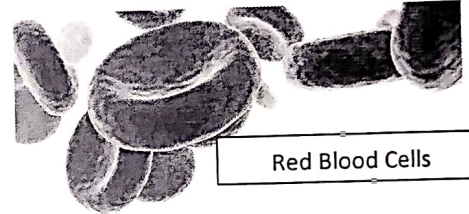


Vein

The Blood Vessels



The Human Heart

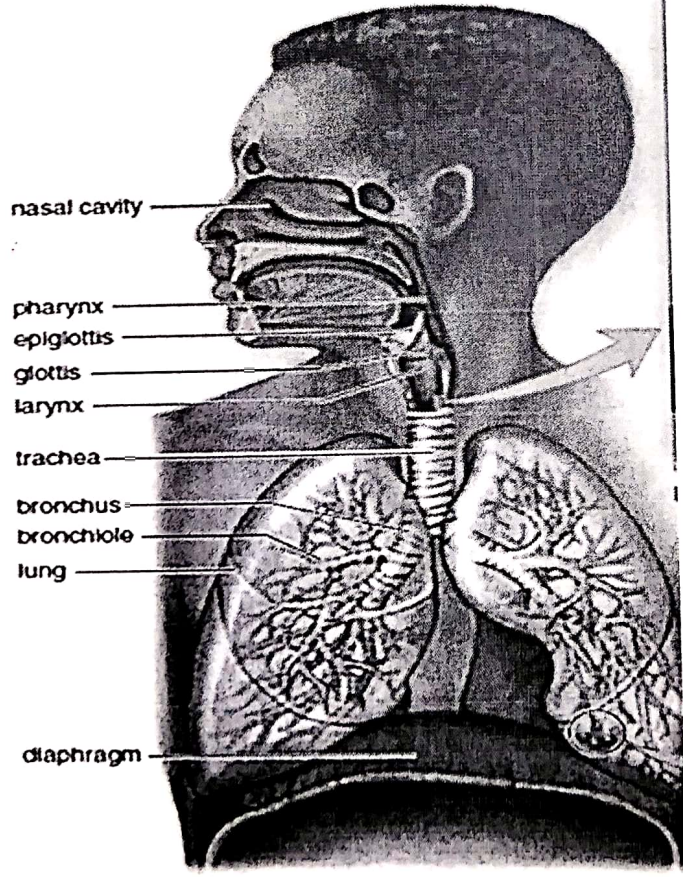


Red Blood Cells

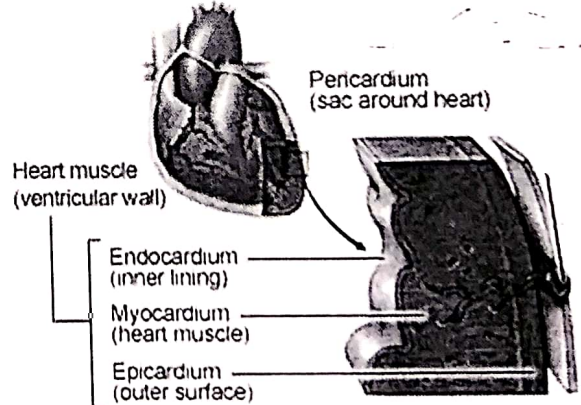
White blood cells



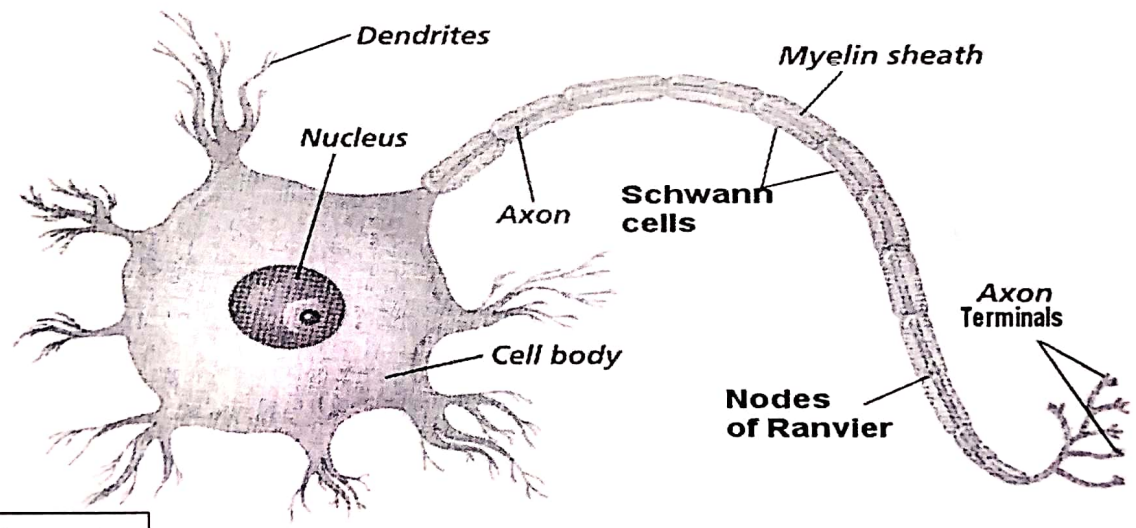
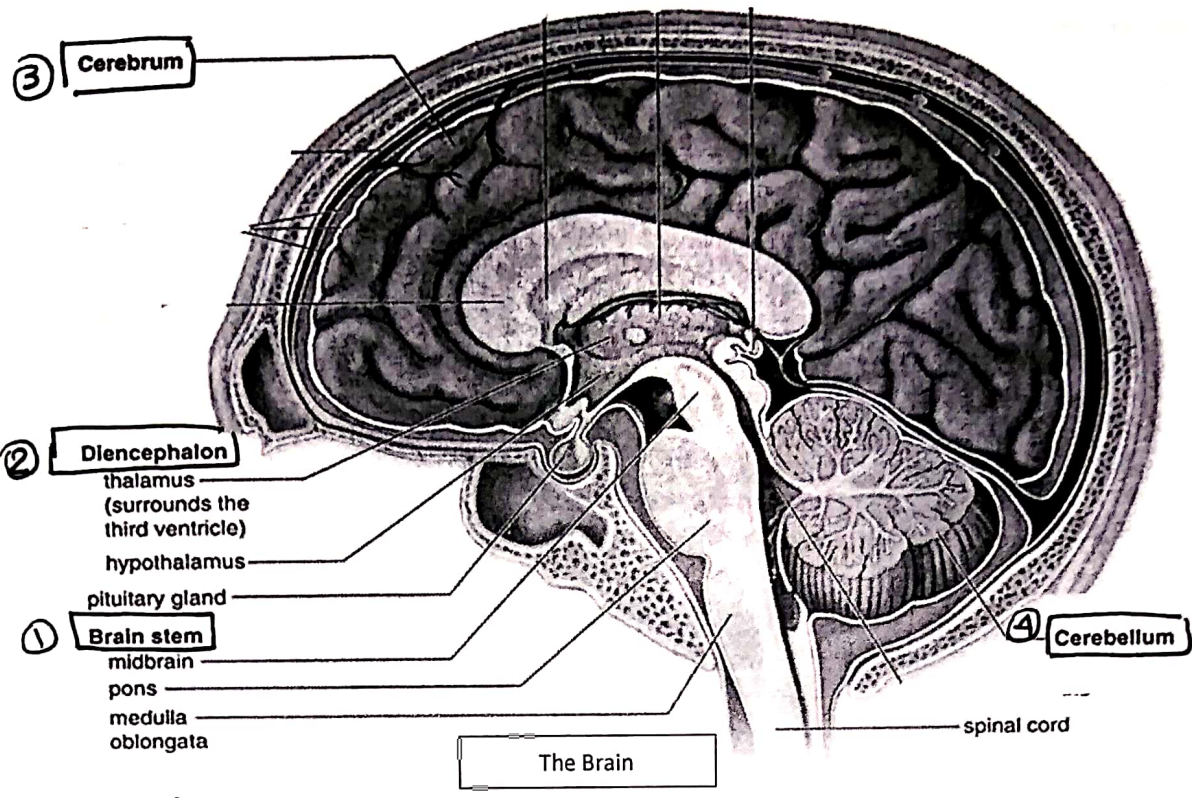
neutrophil eosinophil basophil monocyte lymphocyte



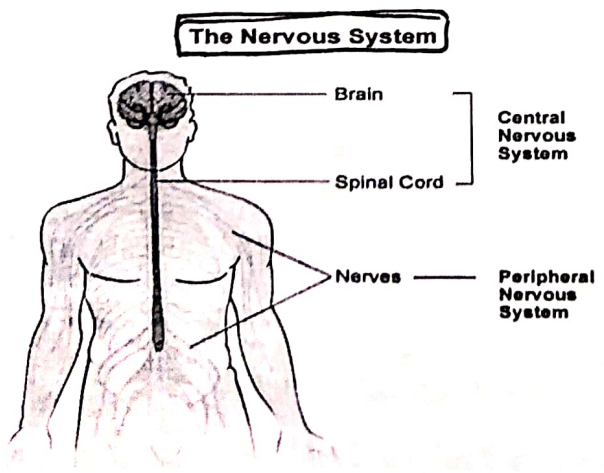
The respiratory system



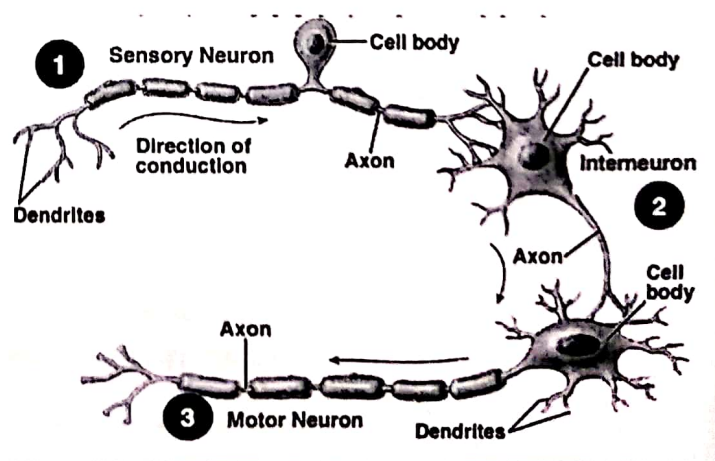
The walls of Human Heart



Neuron (nerve cell)



Three Types of Neurons



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حقائق هامة

Ch. 9

- The site of photosynthesis is = Chloroplast. موقع البناء الضوئي البلاستية الخضراء
- In photosynthesis, light independent reactions are known as = Calvin cycle. التفاعلات غير الضوئية
- Photosynthesis is divided into two parts = Light dependent reactions and light independent reactions. تفاعلات غير ضوئية
- Leaves are the major part of a plant that carries on = photosynthesis. الجزء الرئيسي النبات
- Photosynthesis requires = water, carbon dioxide, and sunlight. الماء، ثاني أكسيد الكربون، ضوء الشمس
- Light dependent reactions take place in = Thylakoids. تفاعلات الضوء الثيلاكويد
- Light independent reactions take place in = Stroma. التفاعلات غير الضوئية
- Light independent reactions require = ATP, NADPH and CO₂. تحتاج
- Light dependent reactions are = Energy harvest. جميع للطاقة
- Light independent reactions are = Synthesis. تخليق
- Photosystem consists of = Antenna and electron acceptor. التظام الضوئي مستقبل للإلكترون
- Cytochrome system is = The electron transport system. تظام النقل
- The electron pathway that produces only ATP = Cyclic pathway. مسار الإلكترون حلقية
- The electron pathway that produces both ATP & NADPH = Noncyclic pathway. غير حلقية
- The light independent reaction, produces = C₆H₁₂O₆. التفاعلات الضوئية
- At Photosynthesis, O₂ is produced during = Light dependent reaction. أثناء
- During light dependent reaction, O₂ is produced from = H₂O. أثناء
- The photosystem I has maximum absorptions at = 700 n.m. امتصاص قصص
- The photosystem II has maximum absorptions at = 680 n.m. امتصاص
- The regenerations of ribulose biphosphate occurs at = Calvin cycle. إعادة إنتاج
- During Calvin cycle, the two molecules of PGAL combine to form = Glucose phosphate. تتكونا يتحدان الألدهيد جزئيه
- Carbon dioxide fixation takes place at = Calvin cycle. تثبيت ثاني أكسيد الكربون حلقية كاليف
- $6\text{CO}_2 + 12\text{H}_2\text{O} + \text{Light energy} \longrightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 + 6\text{H}_2\text{O}$

• 80% plants are = **flowering plants (Angiosperms)**

• **Plants possess two systems:**

1. Roots system (The Root): ^{المجموع الجذري} Anchors & support, ^{المعادن} Absorbs water and minerals, ^{الجزر} Store foods, (as in Carrots, sweet potatoes), ^{البطاطا الحلوة} cylindrical shape to penetrate soil.

• Root hairs and branches increase = absorption

2. The shoot system: Consist of :

(i) **Stem:** main axis of plant, consist of **Terminal bud:** at top, elongate stem and produce new leaves, **Axillary bud:** at a node between leaf and stem, produce branches (or flowers), **Node:** where leaves are attached to the stem.

Internode: between nodes.

(ii) **Leaves:** carry out photosynthesis, two types (Plants)
 1. **Evergreens:** whole year.
 2. **Deciduous:** lose every year

• Leaves consist of blade (wide portion), petiole (attaches to stem), some specialized like tendrils (attach to objects) and bulbs (store food) or capture insects.

• **Flowering plants are of two types: Monocots & Dicots**

	Root	Stem	Leaf	Flower
• 1. Monocots	• Xylem & Phloem in a ring الحشب واللحاء مرتب في حلقة	• Vascular Bundles Scattered الحزم الوعائية (الخيار الملحم) متباعدة	• Parallel veins عروق الورقة مرتبة في شكل متوازي	• Parts 3 or multiple of 3 أجزاء الزهرة 3 أو مضاعفات
• 2. Eudicots (Dicots)	• Phloem between Xylem (star shape) الحشب واللحاء مرتب في شكل نجمة	• Vascular Bundles in ring الحزم الوعائية مرتبة في شكل دائرة	• Netted veins عروق الورقة مرتبة في شكل شبكي	• Parts 4-5 or multiple أجزاء الزهرة 4 أو 5 أو مضاعفات

النباتات الزهرية أنسجة

Tissues of Flowering Plants:

① **Apical meristems:** At or near tips of stems and roots, increase length, produces
أنسجة مرستيمية أنواع ثلاثة
three types of meristem:

1. **Protoderm:** gives rise to epidermis (forms outer protective covering),
غطاء حماية خارجي يوفر نسيج البشرة ينتج
2. **Ground meristem:** produces ground tissue (fills interior of plant)
الأنسجة الداخلية يملأ النسيج الأساسي ينتج
3. **Procambium:** produces vascular tissue (xylem & phloem)
اللحاء الخشب النسيج الوعائي

② **Epidermal Tissue:** Plant body covered by epidermis with a waxy cuticle to
بأدمة شمعية يغطي
prevent water loss and infections.
فقدانه الماء لمنع العدوى

- In leaves guard cells (epidermal cells) with chloroplasts.
خلايا حارسة الأوراق بلاستيدات خضراء

③ **Ground Tissue:** forms bulk of plant and contains:

1. **Parenchyma:** most abundant, thin primary walls, contain chloroplasts and
النات كتلة يتكون نسيج أساسي
carry on photosynthesis.
البناء الضوئي تقوم به

2. **Collenchyma:** thick primary walls, give flexible support,
جدرانه أولية سمكية الدعامة المرنة

3. **Sclerenchyma:** thick secondary walls of lignin, hard, nonliving, support plant
جدرانه ثانوية سمكية تدعم غير حي صلبة اللجنين

Two types: هامة تجارياً (اقتصادياً)
أنسجة

- a. **Fibers (commercially important)**
أغلفة البذور الخلايا الحجرية
- b. **Sclereids (in seed coat & nut shells)**
الأنسجة مركبة النسيج الوعائي

④ **Vascular Tissue (complex tissues):** two types: الفصيصات

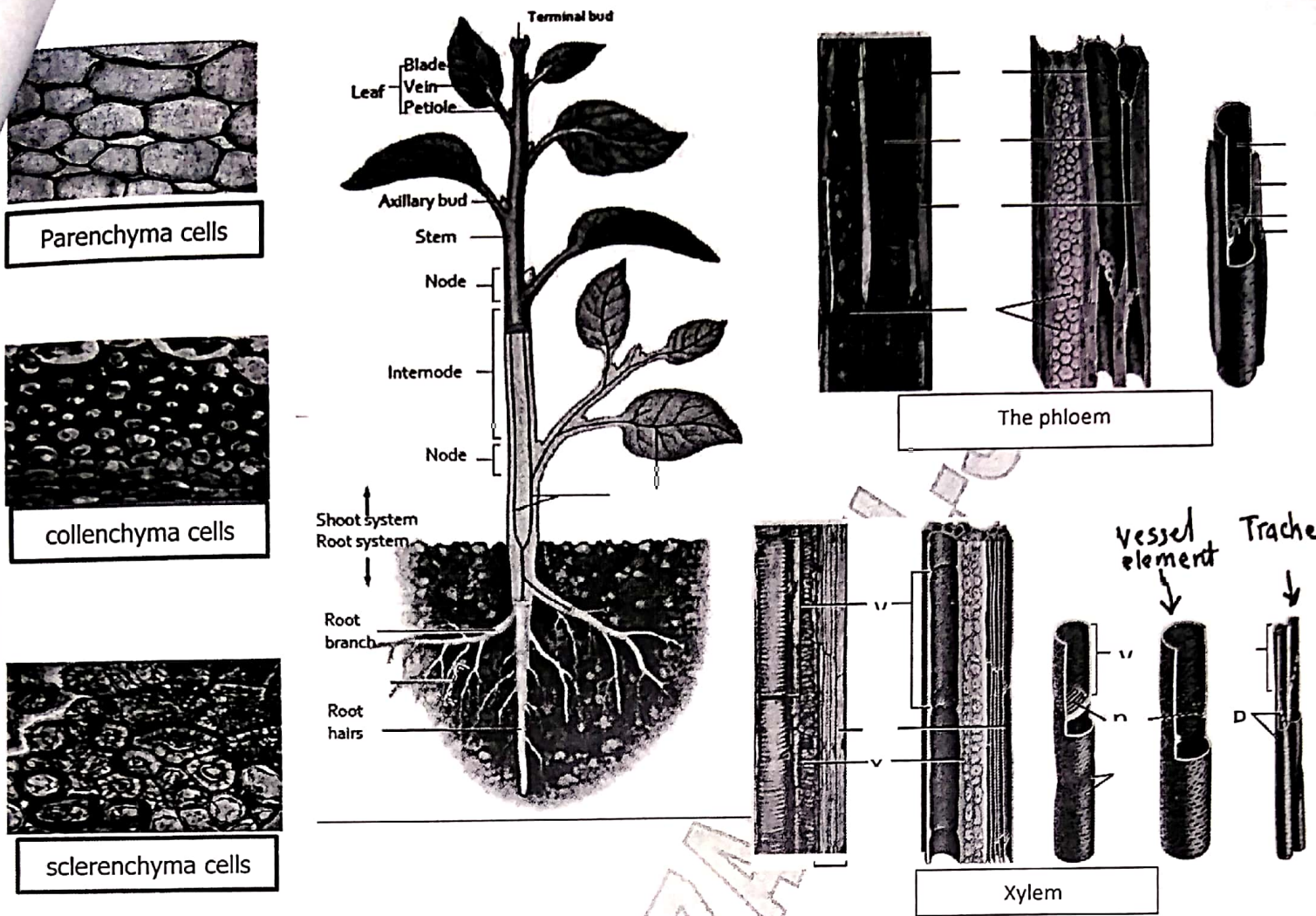
1. **Xylem:** transports water and minerals, consist of **Tracheids** and **Vessel**
المعادن الماء ينقل الخشب

- **Elements**, nonliving.
الأوعية الخشبية غير حي

2. **Phloem:** transports sucrose and organic compounds, consist of:
المركبات العضوية السكر اللحاء

- a. **sieve-tube members** (no nuclei).
أنوية لا توجد أنابيب غربالية
- b. **companion cell** (have nucleus).
نواة بها خلية مرافقة
- c. **Sclerenchyma fibers** for support
للدعامة ألياف سكلرنشيميا

- in **roots** they form **vascular cylinder**.
الجذور استطارة دعائية تتكون
- in **stem** form **vascular bundles**.
الساق حزم وعائية
- in **leaf** form **veins**.
الأوردة اوعائية (عروم)



	cotyledons	Root	Stem	Leaf	Flower
Monocots	<p>One cotyledon</p>	<p>Xylem & phloem as ring</p>	<p>Xylem & phloem scattered</p>	<p>Parallel veins</p>	<p>Three or the multiple of three</p>
Dicots	<p>Two cotyledons</p>	<p>Xylem & phloem as star</p>	<p>Xylem & phloem as ring</p>	<p>Netted veins</p>	<p>four or five and the multiple</p>

Chapter (1): The Chemistry of Organic Molecule

Choose the correct answers:

- 1- The organic molecules includes.....
a- Carbohydrates + Lipids b- Proteins c- Nucleic acids d- All are correct
- 2- The function of carbohydrates is.....
a- Repair tissues b- Build the body c- Lipid source d- Energy storage
- 3- Maltose is a
a- Polysaccharide b- Disaccharide c- Monosaccharide d- Protein
- 4- The pentose sugar of RNA is
a- Glucose b- Maltose c- Ribose d- Starch
- 5- Proteins are made from amino acids joined by
a- Peptide bonds b- Hydrogen bonds c- Phospho diester bonds d- none
- 6- Nucleic acids are information rich polymers of
a- Monosaccharaides b- Amino acids c- Fatty acids d- Nucleotides
- 7- A disaccharide is formed by joining of monosaccharaides.
a- One b- Two c- Three d- Four
- 8- Glucose is a
a- Monosaccharides b- Disaccharide c- Polysaccharide d- Protein
- 9- Majority of carbohydrates have a carbon to hydrogen to oxygen ratio of
a- 1:5:1 b- 1:2:4 c- 1:2:1 d- 2:1:3
- 10- Starch is a
a- Polysaccharide b- Disaccharide c- Monosaccharide d- Protein
- 11- Glycogen is store in our
a- Muscle b- Liver c- Bone d- Both a & b
- 12- Nucleotides consist of
a- Phosphate b- Pentose sugar c- Nitrogen base d- All are correct
- 13- Sucrose is extracted from the
a- Sugarcane b- Cucumber c- Fruits d- Both a & b
- 14- Butter and beef fat are at room temperature.
a- Liquid b- Solid c- Gas d- Hot
- 15- It is storage polysaccharide in plants.
a- Sucrose b- Maltose c- Lactose d- Starch
- 16- This sugar is found in milk.
a- Sucrose b- Maltose c- Lactose d- Starch
- 17- How many types of RNA are produced in nucleus?
a- m-RNA b- r-RNA c- t-RNA d- All are correct
- 18- The protein which transport oxygen in human
a- Hemoglobin b- Myoglobin c- Myosin d- Adenine
- 19- Amino acid is the monomer of
a- Proteins b- Lipids c- Glucose d- Fats
- 20- Which of the following is the six carbon monosaccharide
a- Glucose b- Ribose c- Ribulose d- maltose

- 21- Exoskeleton of insects and crustaceans are made up of
 a- Cellulose b- Protein c- Lipids d- Chitin
- 22- Saturated fatty acids contain
 a- Hydrogen bond b- Double bond c- Single bond d- none
- 23- Lipids are
 a- Soluble in water b- Insoluble in water
- 24-tend to have a protective function in living organisms.
 a- Fats b- Starch c- waxes d- Proteins
- 25- A protein is formed of
 a- Amino acid monomers b- Fatty acid monomers c- Both a & b d- none
- 26- Pentose sugar in DNA is
 a- Ribose b- Deoxyribose c- Ribulose d- none
- 27- r-RNA is
 a- Messenger RNA b- Ribosomal RNA c- Transfer RNA
- 28- Lactose is a
 a- Polysaccharide b- Disaccharide c- Monosaccharide d- Protein
- 29- The unit of nucleic acid is
 a- monosaccharides b- Amino acids c- Fatty acids d- Nucleotides
- 30- The six carbon sugar is called.....
 a- Pentose b- Hexose c- Both a & b d- none
- 31- Glucose is stored in our liver in the form of glycogen. a- True b- False
- 32- Plant oil is an unsaturated fats. a- True b- False

Fill in the blanks with the correct answer:

- 33- The organic molecules are..... types.
- 34- Lactose is a disaccharide found in.....
- 35- Glucose, with six carbon atoms, is a hexose and has molecular formula of.....
- 36- are the proteins responsible for defense from diseases.
- 37- are the proteins responsible for the form of hair and nails.
- 38- What is the most important role of proteins?
- 39- If one DNA strands read ATC GGG TCC CAA , what will be the second strand?

- 40- Name the sugar we use at home?

Chapter (1): The Chemistry of Organic Molecules									
1	D	2	D	3	B	4	C	5	A
6	D	7	B	8	A	9	C	10	A
11	D	12	D	13	A	14	B	15	D
16	C	17	D	18	A	19	A	20	A
21	D	22	C	23	B	24	C	25	A
26	B	27	B	28	B	29	D	30	B
31	A	32	A						

- 33- four 34- milk 35- $C_6H_{12}O_6$ 36- Antibodies 37- Keratins
- 38- Enzymes 39- TAG CCC AGG GTT 40- Sucrose

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23

أسئلة هامة

Chapter (2): The Cell Structure and Function

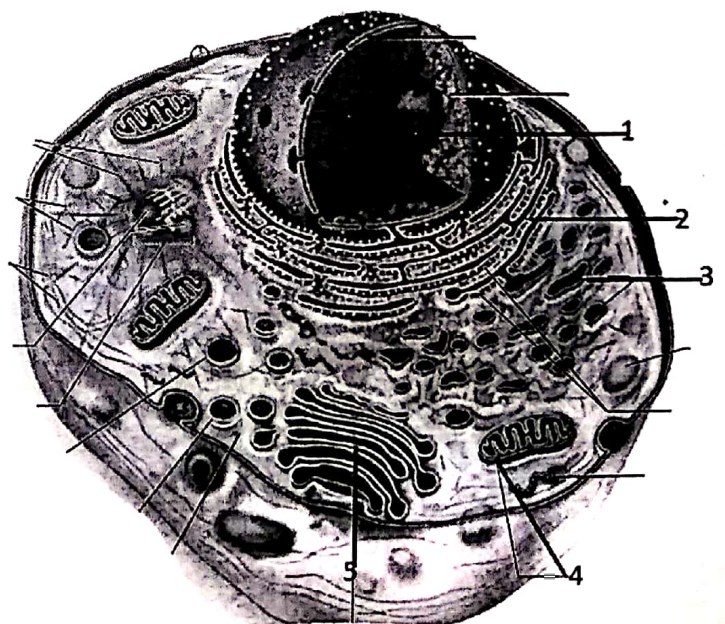
Choose the correct answers:

- 1- The smallest unit in the structure of living organisms is.....
a- The cell b- The tissue c- The organ d- The organ system
- 2- The cell theory states.....
a- All organisms are composed of cells.
b- Cells are the basic units of structure and function in organisms.
c- Cells come only from preexisting cells.
d- All of the above.
- 3- The nucleus is separated from the cytoplasm by a double membrane known as:
a- septum b- Nuclear Envelope c- Nucleus d- Chromatid
- 4- The membrane bound vesicle which contain enzymes whose action result in Hydrogen peroxide (H_2O_2) is
a- Chloroplast b- Peroxisome c- Ribosome d- Mitochondria
- 5- Rough Endoplasmic Reticulum ER is studded with
a- Nucleus b- Ribosomes c- Chloroplasts d- Mitochondria
- 6- The semifluid inside the chloroplast is
a- Nucleoplasm b- Matrix c- Stroma d- Cytoplasm
- 7- Stroma and granum is found inside the.....
a- Nucleus b- Golgi apparatus c- Chloroplast d- Vacuole
- 8- Which among the following have prokaryotic cells
a- Bacteria b- Archaea c- Both a & b d- none
- 9- Many bacteria have an extra chromosomal piece of circular DNA is called.....
a- Flagellum b- Centromere c- Plasmid d- Chromatid
- 10- Spherical shaped bacterium is called.....
a- Spirochetes b- Coccus c- Bacillus d- Spirillum
- 11- Lysosomes are produced by.....
a- Golgi apparatus b- Ribosomes c- Chloroplasts d- Mitochondria
- 12- Rod shaped bacterium is called.....
a- Spirochetes b- Coccus c- Bacillus d- Spirillum
- 13- Power houses of the cell is.....
a- Endoplasmic Reticulum b- Ribosomes c- Chloroplasts d- Mitochondria
- 14- The semifluid inside mitochondria is
a- Nucleoplasm b- Matrix c- Stroma d- Cytoplasm
- 15- A stack of thylakoids is a.....
a- Nucleus b- Granum c- Cristae d- none
- 16- The organelle which carry out photosynthesis is.....
a- Golgi apparatus b- Ribosomes c- Chloroplasts d- Mitochondria
- 17- The colorless plastids that synthesizes and stores fats and oils are.....
a- Chloroplasts b- Chloroplasts c- Leucoplasts d- Protoplasts
- 18- The cell organelle discovered by Camillo Golgi in 1898 is....
a- Golgi apparatus b- Ribosomes c- Chloroplasts d- Mitochondria
- 19- The cell organelle which carry out lipid synthesis.....
a- Smooth endoplasmic Reticulum b- Ribosomes c- Chloroplasts

- 20- The control center of the cell is.....
 a- Nucleus b- Ribosomes c- Chloroplasts d- Mitochondria
- 21- Plantcontain water, sugars, salts, pigments and toxic molecules.
 a- Cell wall b- Chloroplast c- Vacuole d- Peroxisomes
- 22- It has a very low pH and store powerful hydrolytic digestive enzymes.
 a- Golgi apparatus b- Ribosomes c- Chloroplasts d- Lysosomes
- 23- The site of photosynthesis.....
 a- Golgi apparatus b- Ribosomes c- Chloroplasts d- Mitochondria
- 24- The cell which has nucleus is called.....
 a- Prokaryotic b- Bacteria c- Eukaryotic d- Both a & b
- 25- The site of protein synthesis is.....
 a- Golgi apparatus b- Ribosomes c- Chloroplasts d- Lysosomes
- 26- A ribosome is made up of subunits.
 a- One b- Two c- Three d- Four
- 27- Photosynthesis is a process requires.....
 a- Water b- CO₂ c- Sunlight d- All are correct
- 28- A large central vacuole is found in the.....
 a- Fungal cells b- Plant cells c- Animal cells d- All are correct
- 29- Animal cells, plant cells and those of fungi and many protists are.....
 a- Prokaryotic b- Eukaryotic
- 30- ATP(energy) is produced in the following cell organelle.....
 a- Golgi apparatus b- Ribosomes c- Chloroplasts d- Mitochondria
- 31- Prokaryotic are so named because.....
 a- They lack membrane bounded nucleus
 b- They have membrane bounded nucleus
 c- They have membrane bounded cell
 d- none
- 32- ER does not have attached ribosomes.
 a- Smooth ER b- Rough ER c- Both a & b d- None

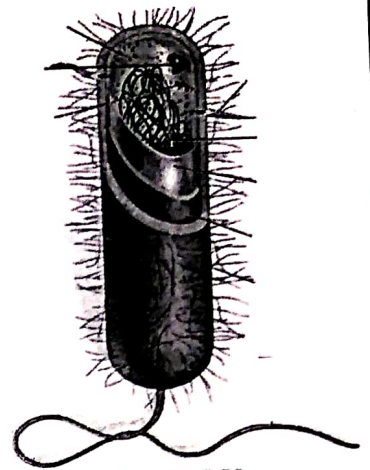
33- Label the marked cell organelle:

- 1
 2
 3
 4
 5



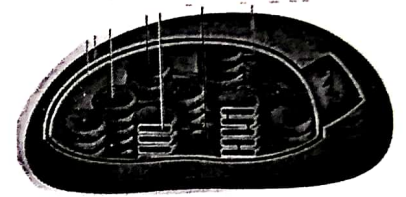
34- Identify the type of the cell

.....



35- Identify the given cell organelle:

.....



Fill in the blanks with the correct answer:

36- Spherical shaped bacterium is called.....

Chapter (2): The Cell Structure and Function

1	A	2	D	3	B	4	B	5	B
6	C	7	C	8	C	9	C	10	B
11	A	12	C	13	D	14	B	15	B
16	C	17	C	18	A	19	A	20	A
21	C	22	D	23	C	24	C	25	B
26	B	27	D	28	B	29	B	30	D
31	A	32	A						

33- 1 Nucleolus 2 Rough Endoplasmic Reticulum 3 Smooth Endoplasmic Reticulum
 4 Mitochondrion 5 Golgi apparatus

34- Prokaryotic cells (Bacterial cells)

35- Chloroplast

36- Coccus

Chapter (3): The Cell Cycle and Cellular Reproduction

Choose the correct answers:

- 1- Mitosis is the division of.....
a- Somatic cell b- Reproductive cell c- Vacuole d- All are correct
- 2- For adult mammalian cells, interphase lasts for about.....of the cell cycle.
a- 10% b- 20% c- 70% d- 90%
- 3- The diploid number of chromosomes is.....
a- n b- $2n$ c- $3n$ d- none
- 4- In human the diploid number of chromosomes is.....
a- 46 b- 64 c- 23 d- 32
- 5- Set of stages that takes place between two cell divisions is.....
a- Cell cycle b- Apoptosis c- Mutation d- Photosynthesis
- 6- Division of cytoplasm is.....
a- Crossing over b- Cytokinesis c- Gametogenesis d- Cell cycle
- 7-is the time when a cell performs its usual functions.
a- Prophase b- metaphase c- Anaphase d- Interphase
- 8- The cell doubles its organelles during.....
a- G_1 b- S c- G_2 d- M
- 9- Function of mitosis is, it permits.....
a- Growth b- Repair c- Both a & b d- none
- 10- G_1 , S, G_2 are parts of.....
a- Prophase b- metaphase c- Anaphase d- Interphase
- 11- Cytokinesis in plant cells involves the building of.....
a- Cell plate b- Plant cell central vacuole c- Cleavage furrow d- none
- 12- The centromeres of the duplicated chromosomes are arranged at the metaphase plate(the center of the cell) during.....
a- Prophase b- metaphase c- Anaphase d- Interphase
- 13- This cell division requires only one nuclear division.....
a- Binary fission b- Mitosis c- Meiosis d- All are correct
- 14- Bacteria reproduce by means of.....
a- Binary fission b- Mitosis c- Meiosis d- All are correct
- 15- The full number of chromosomes presents in all cells of the individual.
a- Haploid b- Diploid c- Polyploid d- All are correct
- 16- In mitotic stage the cytoplasm divided in.....
a- Mitosis stage b- Cytokinesis stage c- Both a & b d- none
- 17- The formation of metaphase plate occurs in.....
a- Prophase b- metaphase c- Anaphase d- Interphase
- 18- During which stage of interphase, DNA Synthesis occur.....
a- G_2 stage b- S- stage c- G_1 stage d- All are correct
- 19- Cleavage furrow formation takes place in.....cell.
a- Animal b- Plant c- Both a & b d- none

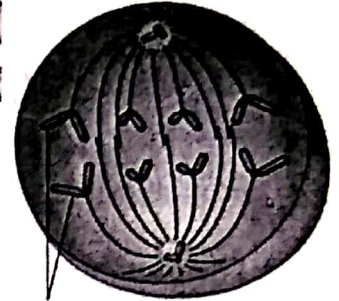
20- Identify the stage of cell division:

.....



21- Identify the stage of cell division:

.....



Daughter chromosomes

Fill in the blanks with the correct answer:

22- DNA synthesis or replication occurs during..... stage of interphase.

Chapter (3): The Cell Cycle and Cellular Reproduction

1	A	2	D	3	B	4	A	5	A
6	B	7	D	8	A	9	C	10	D
11	A	12	B	13	B	14	A	15	B
16	B	17	B	18	B	19	A		

20- Metaphase of Mitosis

21 - Anaphase of Mitosis

22- S

Chapter (4): Meiosis and Sexual Reproduction

Choose the correct answers:

- 1- In this nuclear division chromosome number becomes half to parent cell.
 a- Binary fission b- Mitosis c- Meiosis d- All are correct
- 2- Alternate forms of a gene are called.....
 a- Allele b- Chromosomes c- Nucleolus d- Apoptosis
- 3- Meiosis produces haploid daughter cells.
 a- One b- Two c- four d- Eight
- 4- Fusion of gametes forms of a cell called.....
 a- Zygote b- Matrix c- Nucleolus d- Ribose
- 5- Exchange of genetic material between non-sister chromatids in a bivalent is.....
 a- Crossing over b- Cytokinesis c- Meiosis d- Photosynthesis
- 6- In female meiosis is part of..... and form egg.
 a- Oogenesis b- Spermatogenesis c- Heredity d- Matrix
- 7- How many nuclear divisions occur during meiosis?
 a- One b- Two c- Three d- four
- 8- In human males, spermatogenesis occurs within the.....
 a- Ovary b- Testes c- Muscle d- Both a & b
- 9- Spermatogenesis produces.....
 a- Child b- Egg c- Sperm d- Fetus
- 10- The diploid number of chromosomes are present in.....
 a- Zygote b- Egg c- Sperm d- Ovum
- 11- In females, oogenesis occurs within the.....
 a- Ovary b- Testes c- Muscle d- Both a & b

Chapter (4): Meiosis and Sexual Reproduction									
1	C	2	A	3	C	4	A	5	A
6	A	7	B	8	B	9	C	10	A
11	A								

(A) Wright True (T) or False (F) (ch. 1,2,3,4)

- 1- Glycogen is the reserve food material stored in liver. ()
- 2- Rough endoplasmic reticulum does not have attached ribosomes. ()
- 3- There are 10 amino acids, found in the living organisms. ()
- 4- At the end of meiosis four cell are formed. ()
- 5- In eukaryotes binary fission produces new individual. ()
- 6- The command center of cell is peroxisomes. ()
- 7- During meiosis chromosome number becomes half to parent cell. ()
- 8- In plant cell a cleavage furrow is formed during cytokinesis. ()
- 9- Mitosis permits growth and repair. ()
- 10- Butter and beef fat are solid at room temperature. ()

(B) Wright True (T) or False (F): (ch. 1,2,3,4)

- 1- Gene is the unite of heredity. ()
- 2- During meiosis two nuclear divisions occurs. ()
- 3- Wheat, corn, and rice, are the major sources of starch in the human diet. ()
- 4- The cell increase in size and double its organelles during G2 stage. ()
- 5- Sister chromatids part and move towards the opposite poles during telophase. ()
- 6- Hemoglobin is a complex protein that transports oxygen. ()

(C) Complete the following:(mid 1)

- 1- DNA synthesis or replication occurs during.....stage of interphase.
- 2- Spherical shaped bacterium is called.....
- 3- Meiosis produceshaploid daughter cells.

(D) Fill in the blanks:(mid 1)

Help
Box

Vacuoles , 46 ,Sugarcane, G1, Gene, Anaphase, Hemoglobin, 2

- 1- At the end of mitosis.....cells are formed.
- 2-is the unit of heredity.
- 3-is a complex protein that transports oxygen.
- 4- The cell increase in size and double its organelles during.....
- 5- In human there arenumber of total chromosome.
- 6- Plant.....contain water, sugars, salts, pigments and toxic molecules.
- 7- Sister chromatids part and move towards opposite poles during.....
- 8- Sucrose is extracted from.....

(E) Fill in the blanks:(mid 1)

Help
Box

Peptide bonds , 20 , Zygote, G1 , Golgi apparatus, Nucleotide,
Cytokinesis, Muscle, Cell plate, Oogenesis

- 1- There areamino acids. found in the living organisms.
- 2- Proteins are made from amino acids linked by.....
- 3- In plant cell a.....is formed during cytokinesis.
- 4- The division of cytoplasm is known as.....
- 5- Camillo Golgi discovered.....
- 6- Glycogen is store in our liver and.....
- 7- In female meiosis is part of.....and form egg.
- 8- The fusion of egg and sperm form a cell called.....

(F) Fill in the blanks:(ch.1)

Help
Box

DNA , Chitin , Antibodies , Chloroplast

- 1- The exoskeleton of insects are made up of.....
- 2-is present only in plant cell.
- 3- The genetic material in living organisms is made up of.....
- 4-are the proteins responsible for defense from diseases.

(G) Match the following: :(ch.1,2,3)

	A	B	
1	Maltose	Starch	
2	Lysosome	Disaccharide	
3	Chloroplast	Glycoproteins	
4	Mitosis	Nucleus Absent	
5	Rice	Division of Cytoplasm	
6	Endoplasmic Reticulum	Hydrolytic Enzymes	
7	S-Stage	Photosynthesis	
8	Cytokinesis	One Nuclear Division	
9	Prokaryotic Cell	DNA Synthesis	
10	Eukaryotic Cell	Plant and Animal	

(H) Match the following: :(ch.1,2)

A		B	
1	Mitochondria	A	Protein System
2	Nucleus	B	Transport Oxygen
3	Ribosomes	C	Power House of cell
4	Smooth Endoplasmic Reticulum	D	Control Center of the Cell
5	Camillo Golgi	E	Lipid Synthesis
6	Hemoglobin	F	Golgi Apparatus

(I) Match the following: :(ch.1,2,3,4)

A		B	
1	Milk sugar	A	Four Cells
2	Meiosis	B	Lactose
3	Command Center of the Cell	C	Allele
4	Ribosome	D	Two Cells
5	Mitosis	E	Protein Synthesis
6	Alternate form of a genes	F	Nucleus

Answers

(A): (1) T (2) F (3) F (4) T (5) F (6) F (7) T (8) F (9) T (10) T

(B): (1) T (2) ~~T~~ (3) T (4) F (5) F (6) T

(C): (1) S (2) Coccus (3) 4

(D): (1) 2 (2) gene (3) hemoglobin (4) G1
(5) 46 (6) vacuoles (7) anaphase (8) sugarcane

(E): (1) 20 (2) peptide (3) cell plate (4) cytokinesis
(5) Golgi apparatus (6) muscle (7) oogenesis (8) zygote

(F): (1) chitin (2) chloroplast (3) DNA (4) antibodies

I	H	G
2	3	5
1	6	1
6	1	6
5	2	9
4	4	8
3	5	2
		3
		4
		7
		10

Chapter (5): Circulation and Cardiovascular System

Choose the correct answers:

- 1- The vertebrate animals have a..... circulatory system.
a- Open b- Closed c- Dual d- Both a & b
- 2- All vertebrate animals have closed circulatory system which is called..... system
a- Respiratory b- Reproductive c- Cardiovascular d- Nervous
- 3- This part of heart is thick and pump the blood.
a- Atria b- Ventricle c- Valves d- Septum
- 4- This is the blood vessel which carries blood away from the heart.
a- Arteries b- Veins c- Capillaries d- None
- 5- The human heart has..... chambers.
a- 1 b- 2 c- 3 d- 4
- 6- The normal average human heart beats are about..... times per minute.
a- 20 b- 40 c- 50 d- 70
- 7- The valve on the left side is called the bicuspid because it has..... flaps.
a- 2 b- 3 c- 4 d- 5
- 8- Mitral valve is.....
a- Tricuspid valve b- Pulmonary valve c- Bicuspid valve d- All are correct
- 9- The liquid portion of blood is called.....
a- WBCs b- plasma c- Platelets d- RBCs
- 10- Thrombocytes are.....
a- WBCs b- plasma c- Platelets d- RBCs
- 11- Function of the atrium is.....
a- Receives blood b- Retunes blood to the heart c- Sends blood away from the heart d- All are correct
- 12- Red blood cells are manufactured in.....
a- Red bone marrow b- Brain c- The liver d- Stomach
- 13- The outer membranous sac of the heart is called.....
a- Endocardium b- Pericardium c- Epicardium d- Myocardium
- 14- The atrioventricular valve present on the right side of the heart is called.....
a- Tricuspid valve b- Pulmonary valve c- Bicuspid valve d- All are correct
- 15- Septum separates the heart into a right side and left side.
a- True b- false
- 16- The contraction of heart chambers is called.....
a- Systole b- Diastole c- Inspiration d- Exhale
- 17- This blood cell lack nucleus.
a- WBCs b- plasma c- Leukocytes d- RBCs
- 18- The thick walled chamber of heart is.....
a- Atrium b- Ventricle c- Arteries d- Capillaries
- 19- The human heart lies within
a- Endocardium b- Pericardium c- Epicardium d- Myocardium
- 20- The human heart has..... valves.
a- 1 b- 2 c- 3 d- 4

- 21- What is the correct name of red blood cells?
 a- Erythrocytes b- Megakaryocytes c- Leukocytes d- Thrombocytes
- 22- RBCs are small.....discs.
 a- Biconvex b- Spherical c- Polyhedral d- Biconcave
- 23- Function of blood include.....
 a- Transports gases, nutrients, wastes and hormones.
 b- Destroy pathogenic microorganisms.
 c- Distributes antibodies that are important in immunity.
 d- All are correct.
- 24- Red blood cells have a pigment called.....
 a- Hemocyanin b- Plastocynin c- Hemoglobin d- All are correct
- 25- Platelets are produced by the fragmentation of.....
 a- Monocytes b- Megakaryocytes c- Leukocytes d- Thrombocytes
- 26- Red blood cells has.....
 a- 120 days of life b- No nucleus c- Hemoglobin d- All are correct
- 27- Platelets are.....
 a- Thrombocytes b- Helps blood-clotting c- Both d- None
- 28- Semilunar valve has a shape of.....
 a- Half moon b- Full moon c- Cup d- None
- 29- Capillaries
 a- Exchange material with tissue fluid b- Carry blood away from the heart
 c- Return blood to the heart. d- Both a & b
- 30- Approximately there aremillion red blood cells per cubic millimeter.
 a- 3 b- 4 c- 5 d- 7
- 31- Platelets are manufactured in.....
 a- Red bone marrow b- Brain c- The liver d- Stomach
- 32-in red blood cells is a transport protein that delivers O₂ to working muscles.
 a- Nucleic acid b- Amino acid c- Hemoglobin d- All are correct
- 33- The aortic semilunar valve lies between the left ventricle and the
 a- aorta b- Pulmonary veins c- Inferior vena cava d- Superior vena cava
- 34-return blood to the heart.
 a- Atrium b- Veins c- Arteries d- Capillaries
- 35- The superior vena cava and inferior vena cava carry blood to the.....
 a- Right atrium b- left ventricle c- Right ventricle d- None
- 36- The smallest blood vessels are.....
 a- Atrium b- Veins c- Arteries d- Capillaries
- 37- The formed elements or blood cells involved in blood clotting or coagulation are
 a- Erythrocytes b- Megakaryocytes c- Leukocytes d- Thrombocytes
- 38-exchange material with tissue fluid.
 a- Atrium b- Veins c- Arteries d- Capillaries
- 39- The inner surface of the heart is lined with.....
 a- Endocardium b- Pericardium c- Epicardium d- Myocardium
- 40- The termrefers to the relaxation of heart chambers.
 a- Systole b- Diastole c- Inspiration d- Platelet

Chapter (5): Circulation and Cardiovascular System

1	B	2	C	3	B	4	A	5	D
6	D	7	A	8	C	9	B	10	C
11	A	12	A	13	B	14	A	15	A
16	A	17	D	18	B	19	B	20	D
21	A	22	D	23	D	24	C	25	B
26	D	27	C	28	A	29	A	30	C
31	A	32	C	33	A	34	B	35	A
36	D	37	D	38	D	39	A	40	B

Chapter (6): The Human Digestive System

Choose the correct answers:

- 1- Human have a.... digestive tract, which begins with a mouth and ends in an anus.
 a- Incomplete b- Complete c- Pancreases d- Large intestine
- 2- Functions of the digestive tract include.....
 a- Ingest food
 b- Breaks food down into small molecules that can cross plasma membrane.
 c- Absorbs these nutrient molecules.
 d- All of the above.
- 3- Chemical digestion requires.....that are secreted by the digestive tract or by accessory glands that lie nearby.
 a- Enzymes b- Teeth c- Villi d- Epiglottis
- 4- The.....mixes the chewed food with saliva.
 a- Teeth b- Saliva c- Tongue d- Palate
- 5- The stomach is a thick walled organ that lies on the.....side of the body.
 a- Right b- Left c- Middle d- Upper
- 6- The wall of the small intestine contains finger like projection for absorption of food. It is known as.....
 a- Villi b- Gastric glands c- Pancreases d- Large intestine

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استاذة هامة

- 7- This part takes food from mouth to the stomach.
 a- Esophagus b- Intestine c- Alveoli d- Trachea
- 8- The length of first 25 cm of small intestine is called.....
 a- Duodenum b- Jejunum c- Ileum d- none
- 9- The saliva is secreted by.....
 a- Pancreas b- Liver c- Salivary glands d- Intestine
- 10- This closes air passages during swallowing.
 a- Alveoli b- Epiglottis c- Trachea d- Pharynx
- 11- Digestion of proteins begins in.....
 a- Mouth b- Small intestine c- Stomach d- Large intestine
- 12- Cecum and rectum are parts of.....
 a- Esophagus b- Small intestine c- Stomach d- Large intestine
- 13- The digestive and respiratory passages come together in the following part...
 a- Larynx b- Pharynx c- Trachea d- Bronchus
- 14- Which one of the following is the largest gland of the body?
 a- Liver b- Pancreas c- Stomach d- Salivary gland
- 15- The secretion of insulin and glucagon hormones takes place by the following gland.
 a- Esophagus b- Small intestine c- Liver d- Pancreas
- 16- Digestion of starch begins in the.....
 a- Mouth b- Small intestine c- Stomach d- none
- 17- Protein is digested to peptides in stomach by.....
 a- Amylase b- Pepsin c- Trypsin d- Maltase
- 18- The large intestine includes.....
 a- The cecum, The colon, the rectum and anus.
 b- The cecum, The colon, villus and anus.
 c- The cecum, The colon, duodenum and anus.
 d- The cecum, The colon, the rectum and gallbladder.
- 19- Starch is a polysaccharide, and its digestion completes in the.....
 a- Mouth b- Small intestine c- Stomach d- none
- 20- Salivary glands secretes.....
 a- Amylase b- Saliva c- Trypsin d- Maltase
- 21- One of the following is a part of small intestine.
 a- Cecum b- Rectum c- Colon d- Duodenum
- 22- There are only one pair of salivary gland that send saliva to mouth.
 a- True b- False
- 23- The closes the air passages during swallowing.
 a- Epiglottis b- Pharynx c- Trachea d- Tongue
- 24- Villi and microvilli are found in.....
 a- Esophagus b- Small intestine c- Stomach d- Large intestine
- 25- The rectum is the part of.....
 a- Liver b- Small intestine c- Stomach d- Large intestine
- 26- Starch is converted to maltose by.....
 a- HCl b- Peptidase c- Salivary amylase d- Pepsin
- 27- Gastric juice has low pH due to.....
 a- HCl b- Saliva c- Salivary amylase d- Trypsin
- 28- Salivary glands are.....

- a- Digestive tract organs b- Accessory organs c- Both a & b d- None
- 29- The length of small intestine is aboutmeter.
a- 3 b- 4 c- 5 d- 6
- 30- The, or the oral cavity serves as the beginning of the digestive tract.
a- Accessory organs b- Small intestine c- Stomach d- Mouth
- 31- Digestion of fat droplets is carried out by.....
a- Lipase b- Saliva c- Salivary amylase d- Trypsin
- 32- Each villus has thousands of microscopic extensions called.....
a- Alveoli b- Microvilli c- Atria d- Platelets
- 33- Thetransports nutrients from intestines to the liver.
a- Aorta b- Hepatic portal vein c- Pulmonary artery d- Pulmonary vein

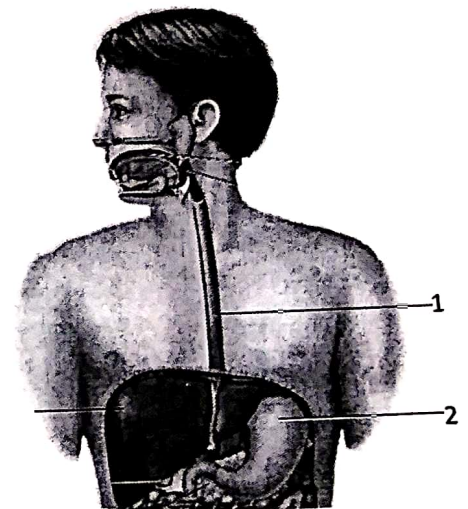
Chapter (6): The Human Digestive System

1	B	2	D	3	A	4	C	5	B
6	A	7	A	8	A	9	C	10	B
11	C	12	D	13	B	14	A	15	D
16	A	17	B	18	A	19	B	20	B
21	D	22	B	23	A	24	B	25	D
26	C	27	A	28	B	29	D	30	D
31	A	32	B	33	B				

34- Identify the part of digestive system:

1-.....

2-.....



1- Esophagus
2- Stomach

Chapter (7): The Human Respiratory System

Choose the correct answers:

- 1- During the rib cage goes up and out, and the diaphragm lowers. The lungs expand and air comes rushing in.
a- Expiration b- Inspiration c- Alveoli d- Trachea
- 2- Major lung disorders are usually due to.....
a- Cigarette smoking b- Bad food habit c- Air d- Water
- 3- In Bronchitis disease
a- Airways are inflamed due to infection.
b- Alveoli fill with pus and fluid.
c- Fibrous connective tissue builds up in the lungs.
d. Alveoli burst and fused into enlarged air spaces.
- 4- In the disease airways are inflamed and bronchioles constrict.
a- Asthma b- Tuberculosis c- Emphysema d- Pneumonia
- 5- Which is the respiratory disorder?
a- Chronic bronchitis b- Tuberculosis c- Emphysema d- All are correct
- 6- During the rib cage goes down and in, and the diaphragm rises and air comes rushing in.
a- Expiration b- Inspiration c- Systole d- Diastole
- 7-are two of the most serious consequences of smoking cigarettes.
a- Emphysema and lung cancer b- Pulmonary fibrosis c- Asthma & pneumonia
- 8-is the main of lung diseases.
a- Malnutrition b- Anemia c- Cigarette smoking d- Sleeping
- 9- Pulmonary tuberculosis infects thesystem.
a- Digestive b- Cardiovascular c- Respiratory d- Nervous
- 10-are examples of respiratory diseases.
a- Pneumonia and tuberculosis b- Anemia and diabetes
c- Diarrhea and blood pressure d- All answers are wrong
- 11- In chronic bronchitis the air passages are.....
a- Burst b- Inflamed c- Constrict d- All are correct
- 12- Duringair enters the body at nasal cavities.
a- Inspiration b- Expiration c- Both a & b d- None
- 13- Major lung disorders are usually due to.....
a- Smoking b- Eating more fats c- Do not exercise d- All are correct
- 14- Fibrous connective tissue builds up in lungs, reducing their elasticity in.....
a- Chronic bronchitis b- Tuberculosis c- Emphysema d- Pulmonary fibrosis
- 15- The main function of respiratory system.....
a- To break food particles b- Supply blood with oxygen
c- Circulate blood d- None
- 16- Inside lungs exchange of gases takes place in.....
a- Alveoli b- Trachea c- Larynx d- Epiglottis

Chapter (7): The Human Respiratory System

1	B	2	A	3	A	4	A	5	D
6	A	7	A	8	C	9	C	10	A
11	B	12	A	13	A	14	D	15	B
16	A								

Chapter (8): The Human Nervous System

Choose the correct answers:

- Function of nervous System are.....
 - Receives sensory input
 - Performs integration of all input
 - Generates motor output
 - All are correct
- Central Nervous System includes.....
 - Brain
 - Spinal Cord
 - Nerve cell
 - Both a & b
- These cells providing support and nourishment of neurons.
 - Neuroglia
 - Cell body
 - Axon
 - Schwann
- Unit of nervous system is.....
 - Neuroglia
 - Neuron
 - Nerve cell
 - Both b & c
- PNS is
 - Peripheral Nervous System
 - Central Nervous System
 - Brain
 - Cell body
-are nervous tissues.
 - Brain and heart
 - Neuron and neuroglia
 - CNS and stomach
 - Brain and lung
- Which among the following is part of neuron?
 - Cell body
 - Dendrites
 - Axons
 - All are correct
- Which of the following transmits nerve impulses from stimulus to CNS?
 - Interneuron
 - Sensory neuron
 - Motor neuron
 - All are correct
- The glandular activity and secretion are controlled by.....
 - SNS
 - ANS
 - Both a & b
 - None
- Which of the following is part of brain?
 - Brain stem + mid brain
 - Diencephalon
 - Cerebellum
 - All of them

TEST (7): Chapter (8): The Human Nervous System

1	D	2	D	3	A	4	D	5	A
6	B	7	D	8	B	9	B	10	D

Type the correct number in front of the correct statement:

اسئلة تدريبية عن سوال المزوجة

A		B	
1	Brain	(31) pairs	1
2	Parasympathetic nerves	Controls smooth muscle	
3	Cranial nerves	(12) pairs	
4	SNS	Diencephalon	
5	Cerebrum	Raise blood pressure.	
6	PNS	Control over skeletal muscles.	
7	ANS	Increase glandular secretions	
8	Spinal nerves	Divided into two cerebral hemispheres	
9	Sympathetic nerves	The central nervous system	
10	CNS	Peripheral nervous system	

A		B	
1	Cell body.	Functional unit.	2
2	Axons	Take nerve impulses from sensory receptors to the CNS.	
3	Motor (efferent) neurons.	Formed by Schwann cells.	
4	Neuron	Support and nourish neurons	
5	Neuroglia	Form nerves.	
6	Dendrites	Have nucleus and organelles.	
7	Sensory (afferent) neurons.	Receive signals and transmit to cell body.	
8	Myelin sheath.	Take nerve impulses from the CNS to muscles.	

↑

الإجابة

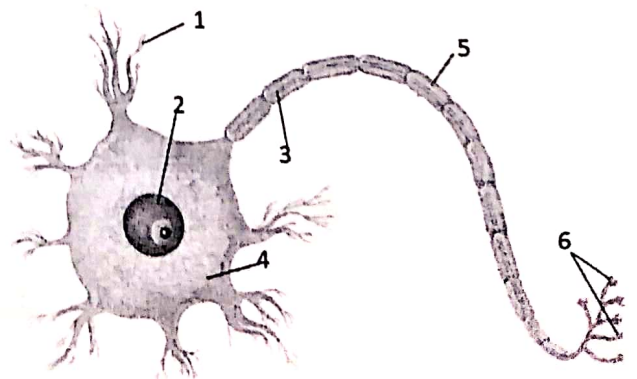
8
7
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3 Label the given figure:

Dendrites	
Axon	
Axon terminal	
Nucleus	
Cell Body	
Myelin Sheath	

الإجابة ص 42



Complete the following:(mid 2)(5-6-7-8)

- 1- Food passage and air passage come together in
- 2- A flap of tissue called closes the air passages during swallowing.
- 3-receive signals from other nerve cells.
- 4-is the contraction of heart chambers.
- 5- Air passes through: Trachea---->Bronchus---->Bronchiole---->.....
- 6-transmit nerve impulses from stimulus to the CNS.
- 7- Number of RBCs in cubic millimeter of blood is.....million.
- 8-carry blood away from the heart.
- 9- The stomach lies on the.....side of the body.
- 10- Alveoli are filled with pus and fluid in the disease.....
- 11- Protein digestion begins in the.....
- 12- The small intestine length is about.....
- 13- The life span of RBCs is about.....days.
- 14-separates the heart into a right and left side.
- 15- All vertebrate animals have circulatory system.
- 16- Starch(polysaccharide-carbohydrate) digestion begins in
- 17- The normal average human heart beats.....
- 18- How many pairs of cranial nerves present in human being.....
- 19-return blood to the heart.
- 20- Give any one disorder of the respiratory system.
- 21- The relaxation of heart chambers is called.....
- 22- The central nervous system consists of.....and spinal cord.
- 23- In peripheral nervous system, there are.....pairs of spinal nerves. (الاجابة ص 42)
- 24- In human, the main respiratory organ is.....
- 25- The wall of small intestine contains finger like projections called.....
- 26- There aremajor pairs of salivary glands that send saliva by way of ducts to the mouth.

5 Fill in the blanks:(MID 2)

Help

Box

Mouth , 120 , Systole , 25 , Pericardium , 6 ,
Neuroglia , Nasal , 3 , Vitamins

- 1- There arekinds of blood vessels.
- 2- The large intestine absorbs water, salts and some.....
- 3-provide support and nourishment for neurons.
- 4- Digestion of carbohydrates begins in.....
- 5- Life span of red blood cells is.....days.
- 6- The length of small intestine is about.....meter in length.
- 7- The human heart lies within the.....
- 8- The first.....cm of the small intestine is called the duodenum.
- 9- During inspiration, air enters the body at.....cavities.
- 10- The contraction of the heart chambers is called.....

(الاجابة ص 42)

Match the following: :(ch.5,6)

A		B	
1	Salivary Gland	A	Thin
2	Hydrochloric Acid	B	Pancreas
3	Pancreatic Juice	C	Stomach
4	Atria	D	Saliva
5	Semilunar Valve	E	Plasma
6	Liquid Portion of Blood	F	Half Moon

7 Wright True (T) or False (F): (ch. 5,6,7,8)

- 1- Neuron is structural unit of nervous system that transmits impulses. ()
- 2- The digestion of protein begins in the mouth. ()
- 3- Pneumonia is a pulmonary disorder. ()
- 4- Defense against disease depends on the various types of red blood cells. ()
- 5- Motor neurons, transmit nerve impulses from stimulus to the CNS. ()
- 6- Due to cigarette smoking the lungs are blackened. ()

7 إجابات الأسئلة من 3 إلى

Dendrites	1
Axon	3
Axon terminal	6
Nucleus	2
Cell Body	4
Myelin Sheath	5

4

- | | | | | | |
|---------------|----------------|--------------|-------------------------|-------------|-------------|
| 1-the pharynx | 2-epiglottis | 3-Dendrites | 4-Systole | 5-Alveoli | 6-Sensory |
| 7- 6m | 8-Arteries | 9- left | 10-Pneumonia | 11- Stomach | 12- 6 meter |
| 14- Septum | 15- closed | 16-the mouth | 17- 70 times per minute | 18- 12 | 13- 120 |
| 19- Veins | 20- bronchitis | 21- diastole | 22- brain | 23- 31 | 24- lung |
| 26- three. | | | | | 25- villi |

5

- | | | | | | |
|----------------|-------------|--------------|--------------|--------|------------|
| 1- 3 | 2- vitamins | 3- Neuroglia | 4- the mouth | 5- 120 | 6- 6 meter |
| 7. Pericardium | 8- 25 | 9- nasal | 10- systole | | |

6

4
3
2
1
6
5

7

- | | | | | | |
|------|------|------|------|------|------|
| 1- T | 2- F | 3- T | 4- F | 5- F | 6- T |
|------|------|------|------|------|------|

Chapter 9: Photosynthesis

Choose the correct answer:

- 1- The chloroplasts are the site of
a- Digestion b- Circulation c- Photosynthesis d- Protein synthesis
- 2- Photosynthesis takes place in the
a- Mitochondria b- Chloroplasts c- Lysosomes d- Cell vacuoles
- 3- The light-dependent reactions in photosynthesis require the participation of Photosystems.
a- 1 b- 2 c- 3 d- 4
- 4- The light dependent reaction is a part of
a- Digestion b- Circulation c- Photosynthesis d- Protein synthesis
- 5- The light independent reaction is a part of
a- Digestion b- Circulation c- Photosynthesis d- Protein synthesis
- 6- Photosynthesis consists of two different reactions, these are
a- Light dependent and hydration reactions
b- Light dependent and independent reactions
c- Light independent and hydration reactions
d- Hydration and dehydration reactions
- 7- Light dependent reactions of photosynthesis include the transformation of
a- Light energy to chemical energy b- Chemical energy to light energy
c- Light energy to light energy d- Chemical energy to chemical energy
- 8- Light independent reactions of photosynthesis include the transformation of
a- Light energy to chemical energy b- Chemical energy to light energy
c- Light energy to light energy d- Chemical energy to chemical energy
- 9- Light dependent reaction lead to the production of
a- ATP molecule only b- NADPH molecule only
c- ATP and NADPH molecules d- Sugar (CH₂O)
- 10- Light independent reaction lead to the production of
a- ATP molecule only b- NADPH molecule only
c- ATP and NADPH molecules d- Sugar (CH₂O)
- 11- The light reactions of photosynthesis are
a- Light dependent b- "Photo" division c- Energy capturing d- All are correct
- 12- The Calvin cycle in photosynthesis is
a- Light independent b- "Synthesis" division c- All are correct
- 13- The light reactions of photosynthesis are
a- Light independent b- Energy storage c- Light dependent d- All are correct
- 14- The Calvin cycle in photosynthesis is
a- Light dependent b- Light independent c- Energy capturing d- All are correct

- 15- In the light dependent reactions, are produced.
 a- Light b- NADPH c- ATP d- Both (b) and (c) are correct
- 16- The require the participation of Photosystem I and Photosystem II.
 a- Light dependent reactions b- Light independent reactions
 c- Calvin cycle d- Respiration
- 17- has maximum absorption at 680 nm.
 a- Photosystem I b- Photosystem II c- Calvin cycle d- Both (a) and (b) are correct
- 18- Photosystem I has maximum absorption at nm.
 a- 660 b- 680 c- 700 d- 720

Complete the following sentences with the correct word.

- 1) Photosystem II has maximum absorption at nm.
- 2) Photosystem I has maximum absorption at nm.
- 3) The light-dependent reactions in photosynthesis require the participation of Photosystems.

KEY ANSWERS(test12)	1) c	6) b	11) d	16) a
	2) b	7) a	12) C	17) b
	3) b	8) d	13) c	18) c
	4) c	9) c	14) b	
	5) c	10) d	15) d	

19) ... 680...

20) 700...

21).... 2

Photosynthesis

1. is the site of photosynthesis.
 - a. Mitochondria
 - b. Nucleus
 - c. Chloroplast
 - d. none
2. are the structural units of the chloroplasts.
 - a. Thylakoids
 - b. Enzymes
 - c. Fats
 - d. none
3. Photosynthesis involves the.....
 - a. Light dependent reactions
 - b. Light independent reactions
 - c. Both "a" and "b"
 - d. None
4. Light dependent reactions take place in.....
 - a. Stroma
 - b. Thylakoids
 - c. Both "a" and "b"
 - d. none
5. Light dependent reactions are..... while light independent reactions are.....
 - a. energy harvest - synthesis
 - b. Synthesis - energy harvest
6. Light dependent reactions require.....
 - a. Photosystem I
 - b. Photosystem II
 - c. Both "a" and "b"
 - d. none
7. Photosystem consists of And
 - a. Antenna - electron acceptor
 - b. Stroma - thylacoid
 - c. Both "a" and "b"
 - d. none
8. Each photosystem absorbs sunlight at the same time.
 - a. True
 - b. False
9. is the electron transport system.
 - a. Chlorophyll
 - b. Carotenoid
 - c. Cytochrome system
 - d. none
10. The..... electron pathway produces only ATP.
 - a. Cyclic
 - b. Noncyclic
 - c. Both "a" and "b"
 - d. none
11. The..... electron pathway produces both ATP & NADPH
 - a. Cyclic
 - b. Noncyclic
 - c. Both "a" and "b"
 - d. none
12. The electrons in the cyclic electron pathway, leave P₇₀₀ and eventually return to it.
 - a. True
 - b. False
13. In the light dependent reaction..... energy is converted to energy.
 - a. light - chemical
 - b. chemical - chemical
 - c. Both "a" and "b"
 - d. none
14. Photosynthesis process takes place in.....
 - a. Roots
 - b. Leaves
 - c. Chloroplasts
 - d. Both "b" and "c"
15. At Photosynthesis, O₂ is produced during.....
 - a. light dependent reaction
 - b. light independent reaction
 - c. Both "a" and "b"
 - d. none
16. During light dependent reaction, O₂ is produced from :
 - a. CO₂
 - b. H₂O
 - c. Both "a" and "b"
 - d. none
17. The photosystem II has maximum absorptions at 700 nm
 - a. True
 - b. False
18. + H₂O + light energy \longrightarrow C₆H₁₂O₆ + + H₂O
 The components that missed at the above reaction are:
 - a. O₂ -- CO₂
 - b. CO₂ --- O₂
 - c. CO₂ --- CO₂
 - d. none

19. Light independent reactions take place in.....
 a. Stroma b. Thylakoids c. Both "a" and "b" d. none
20. Light independent reactions require.....
 a. ATP b. Solar energy c. ATP & NADPH d. none
21. In the light independent reaction is also called.....
 a. Kreps cycle b. Calvin cycle c. Both "a" and "b" d. none
22. The light independent reaction, produces $C_6H_{12}O_6$
 a. True b. False
23. The regenerations of ribolose biphosphate occurs at:
 a. light dependent reaction b. Calvin cycle
 c. Both "a" and "b" d. none
24. Carbon dioxide fixation takes place at:
 a. light dependent reaction b. Calvin cycle
 c. Both "a" and "b" d. none

KEY ANSWERS	1)	C	2)	A	3)	C	4)	B	5)	A	6)	C	7)	A
	8)	A	9)	C	10)	A	11)	B	12)	A	13)	A	14)	D
	15)	A	16)	B	17)	B	18)	B	19)	A	20)	C	21)	B
	22)	A	23)	B	24)	B								

"Flowering Plants"

Ch.10

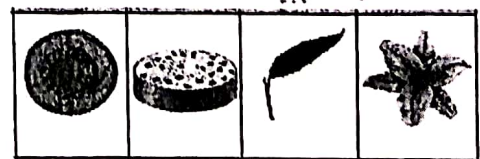
1. The petiole is a stalk that attaches the blade to the stem. A - True B - False
2. Shoot system in plants is consists of:
A. Stem B. Leaves C. Flowers D. All these are correct
3. An axillary bud, located at a node in the upper angle between the leaf and the stem.
A - True B - False
4. Terminal bud occur at the top of the stem to elongate and produce new leaves.
A-True B - False
5. Photosynthesis is a process that requires :
A. Water B. Carbon dioxide C. Sunlight D. All these are correct
6. A typical plant have reproductive organs:
A- Flowers B- seeds C- fruits D- All these are correct
7. Plants that bear leaves the entire year are called evergreens.
A - True B - False
8. Stems are the major part of a plant that carries on photosynthesis.
A - True B - False
9.anchor the plant and also absorb water and minerals.
A. Root B- bud C- leaves D- stem
10. Strongconduct water up to the leaves from the roots.
A- Root B- bud C- leaves D- stem
11. Leaves produce hormones that stimulate the growth of stems.
A - True B - False
12.and branches : increase the absorptive capacity of the root.
A- Root hairs B- Seeds C- Axial bud D- stems
13.occurs at the stem that allows the stem to elongate and produce new leaves.
A - Internode B - An axillary bud C - Terminal bud D- Non
14.is located at anode in the upper angle between the leaf and the stem.
A - Internode B - An axillary bud C - Terminal bud D- Non
15. occurs where leaves are attached to the stem.
A - Internode B - An axillary bud C - Terminal bud D- Node
16. Leaves are the major part of plant that carries on
A - Nutrition B - Growth C - Reproduction D- Photosynthesis

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42

مسألة 10

17. Plants that bear leaves the entire year are called.....
 A - Deciduous B - Gymnosperms C - Evergreen D- Flowering
18. Plants that lose their leaves every year are called.....
 A - Deciduous B - Gymnosperms C - Evergreen D- Flowering
19. The wide portion of the leaf is called the.....
 A - Terminal bud B - Veins C - Petiole D- Blade
20. The is a stalk that attaches the blade to the stem.
 A - Terminal bud B - Veins C - Petiole D- Blade
21. The upper acute angle between the petiole and stem is the leafwhere the axillary bud is found.
 A - Axil B - Terminal bud C - Petiole D- Blade
22. Theleaves , carry out photosynthesis.
 A. Tendril B. Foliage C. Spiny D. None
23. Cotyledons of monocotyledon plants.....
 A. Supply nutrients for seedlings B. Carry out photosynthesis
 C . Acts as a transfer tissue D. All are correct
24. In monocot stem vascular bundle are arranged:
 A. In ring B. Scattered C. Centered D. None of these are correct
25. Leaf veins in Eudicots exhibit parallel venation, but in Monocots exhibit netted venation. A - True B - False
26. Cotyledons of eudicots supply nutrients for seedlings.
 A - True B - False
27. In the monocots root, the xylem is star-shaped and the phloem is located between the points of the star. A - True B - False
28. Leaf veins in monocots exhibit.....venations, but in eudicots exhibit netted venation.
 A - Parallel B - Pinnate C - Stare D- Palmate
29. Monocots have their flower parts arranged in multiples of.....
 A - 3 B - 4 C - 5 D- 6
30. This diagram is related to:
 A - Monocots B - Eudicots
 C - Fungi D- Algae
31. In the monocot root vascular tissues occurs in.....
 A - Bundle B - Ring C - Star D- Scattered



32. In dicot stem , the vascular bundles are arranged in.....
 A - Scattered B - Ring C - Star D- None
33. A flowering plant has the ability to grow because it possesses.....
 A - Embryonic tissue B - Apical meristem C - Meristematic tissue D- All
34. Increase the length of the plants.
 A. Protoderm B. Vascular ring C. Apical meristem D. Ground meristem
35. Gives rise to epidermis of the plant.
 A. Protoderm B. Vascular ring C. Apical meristem D. Ground meristem
36. produces ground tissue of the plant.
 A. Protoderm B. Procambium C. Apical meristem D. Ground meristem
37. produces vascular tissue of the plant.
 A. Protoderm B. Procambium C. Apical meristem D. Ground meristem
38. The lower epidermis of eudicots plants contain specialized cells around the stomata called.....
 A. Bud cell B. Guard cells C. Root hairs D. Waxy cuticle
39.cells give flexible support to immature regions of a plant body.
 A. Xylem B. Collenchyma C. Sclerenchyma D. Parenchyma
40. Sclerenchyma cells have thick secondary cell walls of.....that makes the cell walls hard.
 A. Cellulose B. Lignin C. Vessel elements D. Fibers
41.are shorter are found in seed coats and nutshells.
 A. Sclereids B. Xylem C. Vessel elements D. Fibers
42. The conducting cells of phloem are specialized parenchyma cells called.....
 A - Companion cells B - Sieve tube elements
 C - Vessel elements D- Tracheids
43. In the roots , the vascular tissue is located in.....
 A. Vascular bundle B. Star C. Vascular ring D. Veins
44. In the stem , the vascular tissue is forms.....
 A. Vascular bundle B. Star C. Vascular ring D. Veins
45. In the leaves , the vascular tissues are found in leaf.....
 A. Vascular bundle B. Star C. Vascular ring D. Veins
46. Collenchyma cells have:
 A - Nucleus B - Thick primary cell wall
 C - Lignin D- Both "B" and " C " are correct

ch. 10

KEY ANSWERS

1)	A	2)	D	3)	A	4)	A	5)	D	6)	D	7)	A
8)	B	9)	A	10)	D	11)	B	12)	A	13)	C	14)	B
15)	D	16)	D	17)	C	18)	A	19)	D	20)	C	21)	A
22)	B	23)	C	24)	B	25)	B	26)	A	27)	B	28)	A
29)	A	30)	A	31)	B	32)	B	33)	D	34)	C	35)	A
36)	D	37)	B	38)	B	39)	B	40)	B	41)	A	42)	B
43)	C	44)	A	45)	D	46)	B						

The end of final revision with my best wishes