



Subject Code: **0809**

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Model Answer

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Important Instructions to examiners:

- 1) The answers should be examined by key words and not as word-to-word as given in the model answer scheme.
- 2) The model answer and the answer written by candidate may vary but the examiner may try to assess the understanding level of the candidate.
- 3) The language errors such as grammatical, spelling errors should not be given more Importance (Not applicable for subject English and Communication Skills).
- 4) While assessing figures, examiner may give credit for principal components indicated in the figure. The figures drawn by candidate and model answer may vary. The examiner may give credit for any equivalent figure drawn.
- 5) Credits may be given step wise for numerical problems. In some cases, the assumed constant values may vary and there may be some difference in the candidate's answers and model answer.
- 6) In case of some questions credit may be given by judgement on part of examiner of relevant answer based on candidate's understanding.
- 7) For programming language papers, credit may be given to any other program based on equivalent concept.

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Q 1 Attempt any FIVE of the following

(10 marks)

(a) What is systole & diastole of heart? (1mark each)

Ans: Systole means contraction of heart muscle & diastole means relaxation of heart muscle.

(b) Name the 1st & 2nd vertebrae of vertebral column. (1mark each)

Ans: The first vertebra is Atlas & second vertebra is axis.

(c) Name different types of blood groups. (2 marks)

Ans: The blood groups are classified on the basis of ABO & Rh system. The blood groups are A,B,AB & O & Rh +ve & RH –ve.

(d) Define tissue and name fundamental tissues of the body. (1mark each)

Ans: Definition: Groups of cells which have the same physical characteristics and similar functions are termed as tissues.

The four main types of tissues are-

- Epithelial tissue
- Connective tissue
- Muscle tissue
- Nervous tissue

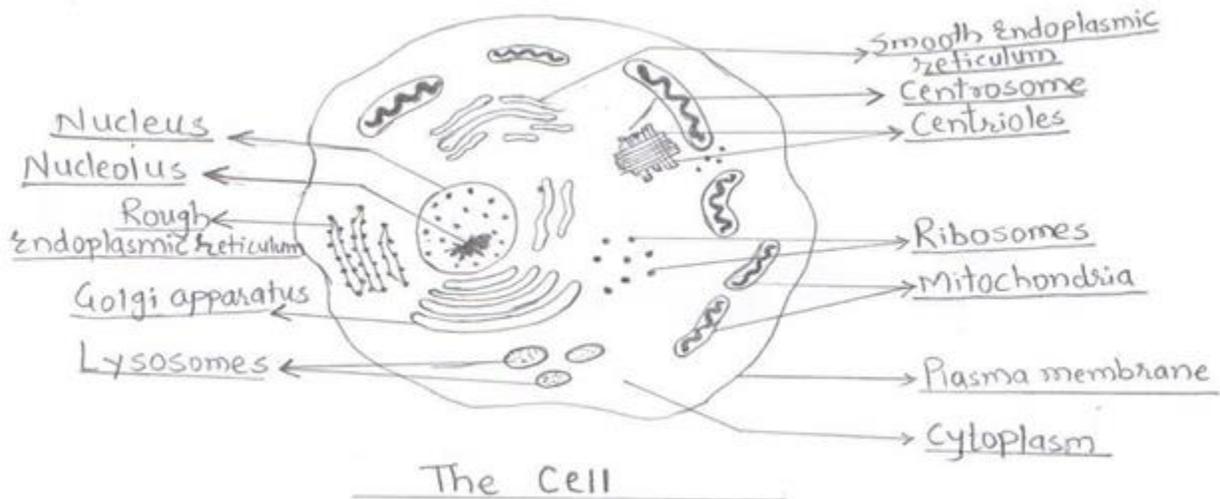
(e) Write normal count of RBCs & WBCs. (1mark each)

Ans: Normal RBC count: Male-4.5-6.5million/mm³ female-4.5-5million/mm³.

Normal WBC count: 4000-10,000/mm³.

(f) Draw a well labelled diagram of simple living cell. (2marks)

Ans:





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(g) What are abnormal constituents of urine? Write composition of normal urine.
(1mark each)

Ans: Abnormal constituents of the urine are blood, protein, sugar, ketone & bilirubin.

Urine is clear & amber colour due to urobilin.

Composition of normal urine:

water- 96%

urea 2%

Uric acid
Creatinine
Ammonia
Sodium
Potassium
Chloride
Phosphate
Sulphate
Oxalate

→ 2%

Q 2 Attempt any FOUR of the following:

(14 marks)

(a) Describe mechanism of blood clotting in short. (3.5 marks)

Ans: When the blood vessel is damaged, loss of blood is stopped by the following way.

1) **Vasoconstriction:** - When platelets come in contact with a damaged blood vessel they adhere to it. Serotonin is released which constricts the blood vessel.

2) **Platelet plug formation:** - The adhered platelets attract more platelets which form platelet plug. This forms temporary seal.

3) **coagulation- (blood clotting):** The thromboplastin (prothrombinase) released by damaged tissue cells by extrinsic or intrinsic pathway. In presence of calcium ions it converts prothrombin to thrombin. Thrombin acts on fibrinogen & converts it to insoluble fibrin. The fibrin mesh traps blood cells. This is known as clotting.

(b) Define:

(i) Myopia (1 mark)

(ii) Infertility (1 mark)

(iii) Glaucoma (1.5 mark)

Ans: (i) Myopia (nearsightedness)

Close vision is normal but Far vision is blurred. (When the eye ball is elongated & image is formed in front of retina)

(ii) **Infertility:** inability of the animal to reproduce.



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(iii) Glaucoma: is a condition characterized by increased intraocular pressure (pressure within the eye) (either through increased production or decreased outflow of aqueous humour produced by the secretary epithelial cells)

(c) Define skeleton. (1mark) Give functions of skeleton. (0.5 mark for each point)

Ans: **Definition:** Skeleton is the bony framework of the body.

Functions of skeleton:

1. Gives attachments to muscles & bones.
2. Forms the joint and hence helps in the movement.
3. Forms the boundaries of the cranial, thoracic & pelvic cavities.
4. haemopoiesis takes place due to presence of bone marrow.
5. Provides reservoir of calcium, phosphates & fats.

(d) How circulation of blood takes place in heart? (3.5marks)

Ans: The superior & inferior vena cava empty into the right atrium. The blood passes to the right ventricle. From this it is passed into the pulmonary artery. The opening of pulmonary artery is guarded by the pulmonary valve, which prevents the backflow of blood. The pulmonary artery divides into right & left arteries which carries deoxygenated blood to the lungs for exchange of gases. The two pulmonary veins from each lung carrying oxygenated blood open into the left atrium. From this it goes to left ventricle & then pumped into the aorta. The opening of aorta is guarded by aortic valve.

(e) Give composition (1.5mark) & functions of intestinal juice. (2marks)

Ans: **Composition of intestinal juice-** PH 7.8 to 8.0

Water, mucus, mineral salts, Enzyme enterokinase (enteropeptidase).

Functions:

- (1)Alkaline juice increases the pH of the intestinal contents to bet. 6.5 to 7.5
- (2)Enterokinase converts trypsinogen to trypsin.

(f) Define & give normal value of: (Any two) (3.5 marks)

(i) Residual volume (ii) Tidal volume (iii) Vital capacity

Ans: (i) **Residual volume:** This is the vol. of air remaining in the lungs after forced expiration. normal value 1.1 litres to 1.2 litres

(ii) **tidal volume (TV)** This is the amt. of air passing into & out of lungs during each cycle of quiet breathing. Normal value-500ml.

(iii) **Vital capacity-(VC)** this is the maxi. Vol. of air which can be moved into & out of the lungs during forceful breathing. VC=tidal vol. +IRV+ERV normal value 3-5 litres.

Q.3 Attempt any FOUR of the following:

14 Marks

a) Describe Physiology of urine formation.

(0.5 Mark for the steps ,1 mark each for explanation.)

Ans: The Urine formation by kidney takes place in 3 steps:-

- 1) Glomerular Filtration



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- 2) Selective reabsorption
- 3) Tubular secretion

1) Glomerular filtration: - The glomerular filtering membranes acts as a ultrafilters. The particles like colloidal, soluble and cell free substances, smaller than endothelial pores are filtered. However big particles like plasma proteins are not filtered. The filtration takes place with the pressure of 35 mm of Hg. This pressure results from different forces involved in glomerular filtration. The GFR i.e. glomerular filtration rate is 120 ml/min, thus producing 170-180 litres of filtrate in a day.

2) Selective reabsorption:- Out of 170-180 litres of filtrate, about 99% is reabsorbed, resulting in formation of 1 litre of urine per day. The filtrate contain major amount of water, which is reabsorbed to the extent of 99%. Depending upon the extent to which various substances are reabsorbed they are classified as:

a) High threshold substances: They get absorbed completely eg. Glucose and potassium (100%), water (99%), calcium and sodium chloride (98-99%).

b) Low threshold substances: Absorbed to some extent eg. Urea, uric acid, phosphate.

c) No threshold substances: These are not required by the body at all. eg. Creatinine, sulphates.

3) Tubular secretion: The substances not required by body and not filtered in glomerular filtration are secreted by the tubules. Depending upon extent to which sodium ions are reabsorbed, potassium, & hydrogen ions are secreted, thus maintaining electrolyte balance of the body. Some metabolized substances like ammonia are also excreted.

Thus the final filtrate of urine, consists of uric acid, urea and is carried by collecting tubule to duct to the pelvis of ureter. The ureter opens in to urinary bladder where it is stored and finally excreted out.

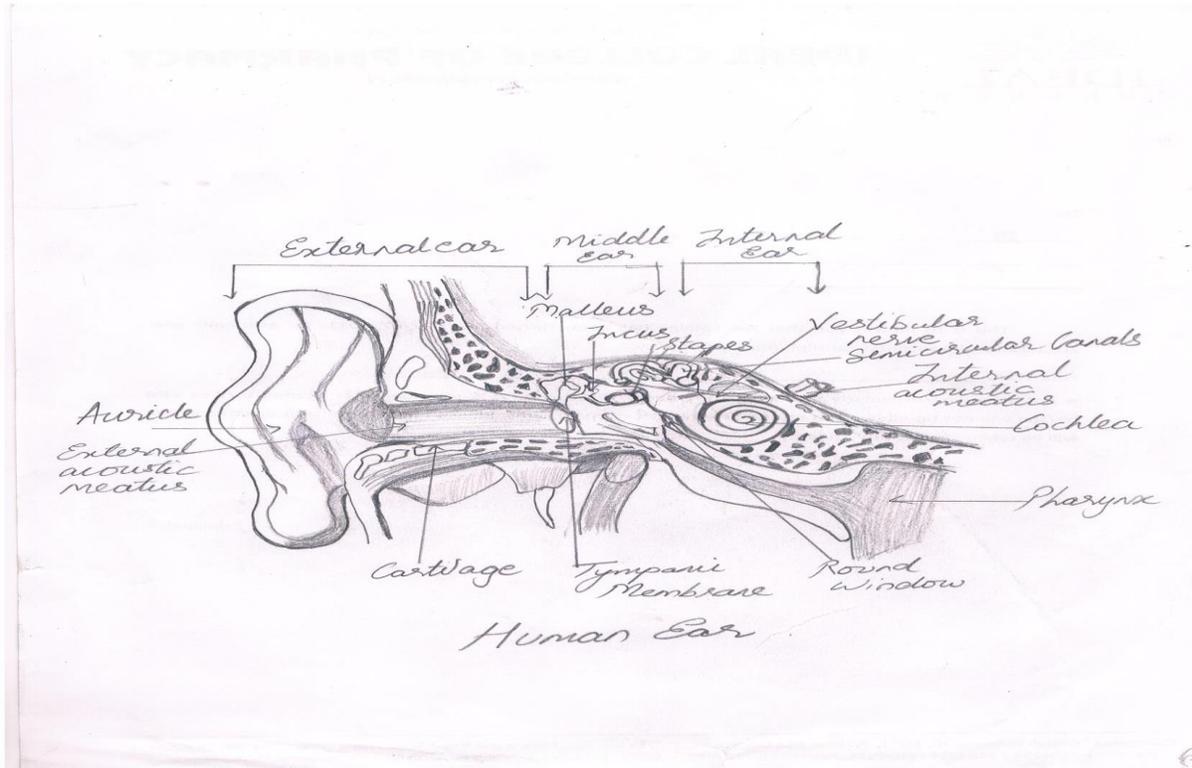
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b) Draw and label structure of Ear.(3.5M)



c) Define:

i) **Cardiac Output: (1.5 marks)**-It is the amount of blood ejected per minute. It is also termed as minute volume. It takes in account the rate and force of cardiac contraction.

$$\text{Cardiac Output} = \text{Stroke volume} \times \text{Heart rate}$$

$$70 \text{ ml} \times 72 = 5040 \text{ ml/ minute.}$$

ii) **Stroke volume:- (1 mark)**It is the amount of blood ejected from heart by each contraction of ventricles. Stroke volume = 70 ml.

iii) **Heart rate: (1 mark)** No. of Forceful contraction and relaxation of heart per minute is called as heart rate. Normal Heart Rate:- 70-72 beats per minute

d) **Give composition and functions of CSF. (Composition-1.5M, 4 functions-2M)**

Ans:-Composition of CSF:-It is a clear, slightly alkaline fluid with a specific gravity of 1.005.

It consists of water, minerals salts, plasma proteins such as globulin, creatinine and urea. It also consists some lymphocytes.

Functions of CSF:- The CSF has following functions:-

- 1) It supports and protects brain and spinal cord.
- 2) It maintains uniform pressure around the brain and spinal cord.
- 3) Acts as cushion and shock absorber



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4) It keeps brain and spinal cord moist.

5) It supplies nutritive substances filtered from blood to brain and spinal cord.

e) Write different functions of skin.(6 Functions, 3.5 M)

Ans:- Functions of skin:-

1) **Protection-** It forms the water proof layer & protects the inner delicate structures. It acts as the barrier against the invasion of the microbes, chemicals & dehydration. The melanin pigment protects against the harmful UV rays.

2) **Regulation of body temperature-** The temp. is constant at 36.8C. When the metabolic rate of the body increases the body temp increases & vice versa .To ensure constant body temp, a balance between heat production & heat loss is maintained by the skin.

3) **Formation of vitamin D-** 7-dehydrocholesterol is present in the skin. The UV light from the sun converts it to vitamin D.

4) **Sensation-** It contains nerve endings of many sensory nerves which act as organ of sensation of touch, temperature, pressure and pain.

5) **Absorption-** Some drugs & chemicals are absorbed through the skin.

6) **Excretion-** Skin is minor excretory organ & excretes NaCl,urea & substances like garlic.

f) Describe the structure and functions of Golgi body(Structure-1.5M,Functions-2M)

Ans:- Structure:- Golgi bodies or complex appear to be a parallel arrangements of membrane and small vacuole, somewhat like a flattened bags. They are located generally near nucleolus. The endoplasmic reticulum and Golgi bodies have direct and fine connections.

Functions:- It stores secretory substances and prepare substances for final secretions. Several enzymes are localized in Golgi apparatus and it is involved in storage, condensation, packaging and transfer of materials.

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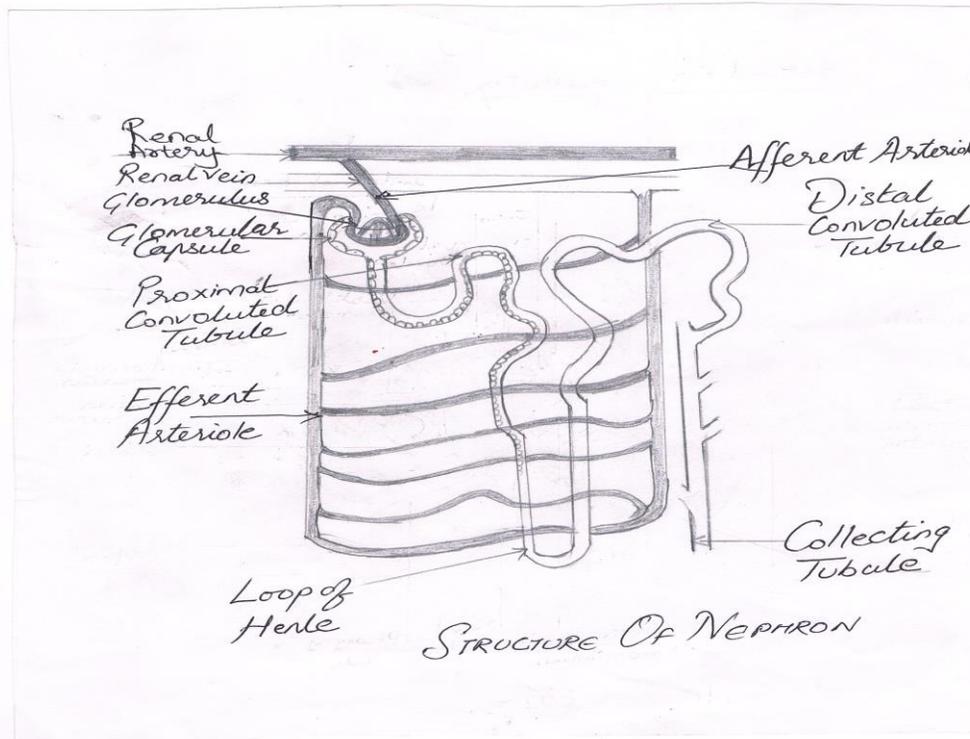
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Q4) Attempt any FOUR of the following:-

(14M)

a) Draw and describe well labeled diagram of Nephron. (Dig-1M,Descp-2.5M)



Nephron: It is the functional unit of the kidney. Nephron consists of a long tube of which one end is closed and the other end opens into collecting tubule.

Each nephron consists of following parts:-

Malpighian body: It consists of 1) **Bowman's capsule and**

2) **Renal glomerulus:** Bowman's capsule is a balloon like hollow capsule, which begins in cortex. Renal glomerulus consists of compact tube of interconnected capillaries, formed by branching of afferent arterioles from renal artery. These capillaries reunite to form efferent arterioles which emerges out of glomerulus.

3) **Renal tubule:-** It is a long tube which is a continuity of Bowman's Capsule, connected by a narrow portion called neck. It is made up of single layer epithelial cells.

The renal tubule is described as:



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i) Proximal convoluted tubule:- It is the first part of renal tubule and is convoluted. Lined by large columnar cells & extends to medulla as loop of Henle.

ii) Henle's loop:- It is a hair pin like structure situated in medulla. Has descending and ascending loop, lined with columnar cells. Returns to cortex to become distal convoluted tubule.

iii) Distal convoluted tubule:- It is lined with cuboidal cells and joins collecting tubule.

iv) Collecting tubule:- Receives urine from distal tubule & lined with columnar cells.

4) Blood vessels:- Besides tubules, kidney consists of blood vessels, renal arteries-afferent and efferent arteriole which brings oxygenated blood and renal vein takes away blood from kidney.

b) What is spleen? Describe its structure and functions. (Descr-1M, Str 1M & Fun-1.5M)

Ans:- The spleen is slightly oval in shape with hilum on lower medial border. It is the largest lymphoid tissue in body.

Structure: It is situated to the left of the stomach below the diaphragm under ninth, tenth and eleventh ribs. It is 12 cm long, 8 cm broad, and 3 cm thick, weighing 150 g in adult. It is surrounded by kidney, colon and pancreas. The spleen is covered with peritonium. Below this, is the layer of connective tissue capsules, fibro elastic capsules, that dips into organ, forming trabeculae. It has white pulp consists of lymphocytes and macrophages & red pulp consists of erythrocytes. The structures entering and leaving spleen of the hilum are spleen artery, splenic vein, lymph vessel & nerves. Blood passing through the spleen passes through sinusoids

Functions of spleen:-

1) **Phagocytosis:-** Erythrocytes are destroyed in spleen as well other cellular materials such as leucocytes, platelets and microbes are also phagocytosed in the spleen.

2) **Haemopoietic organ:-** Formation of erythrocytes in foetal as well as in adult.

3) **Red cell storage:-** During stress, it can liberate 150 ml of blood, thus acts as reservoir of red blood cells.

4) **Antibodies formation:-** The spleen provides defense against infection by tubercle bacillus.

c) Describe different types of epithelial tissue. (0.5 M each)

Ans:- Epithelial tissues can be classified in two type:-

1) **Simple epithelium-** i) Squamous/pavement epithelium ii) Cuboidal epithelium, iii) Columnar epithelium, iv) Ciliated columnar epithelium.

2) **Compound epithelium:-** i) Stratified epithelium and ii) Transitional epithelium.

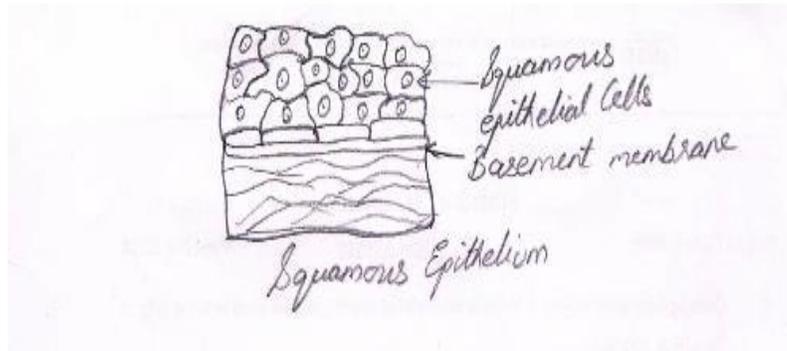
i) Squamous/pavement epithelium;- Composed of single layer of flattened cells, fit like flat stones and forms a smooth membrane. This tissue provides a thin smooth, inactive lining for heart, blood vessels, alveoli of lungs and lymph vessels.

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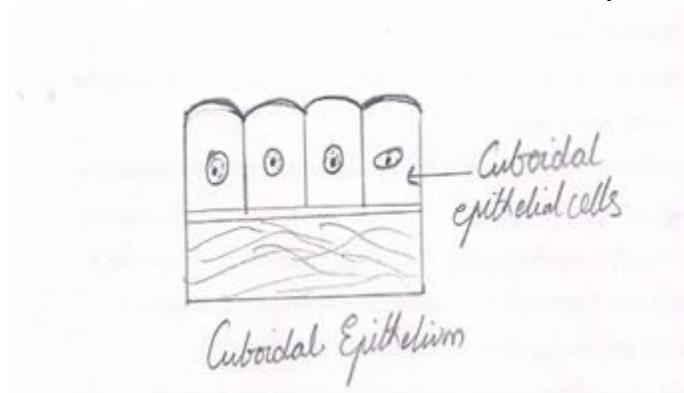
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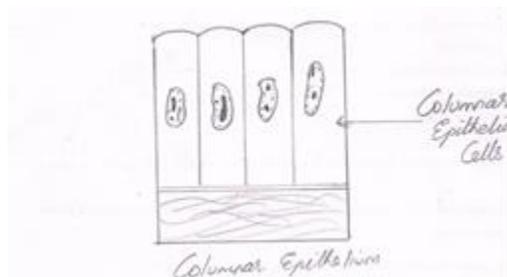
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ii) Cuboidal epithelium:-Composed of cube shaped cells and forms the basement membrane. Involved in secretion and absorption. Present in some simple secretive glands. Forms basement membrane in tubules of kidney .



iii) Columnar epithelium:-Formed by single layer of tiny cylindrical columns and situated on a basement membrane .Found lining the organs of alimentary tract and special columnar cells called 'goblet cells', in GIT secretes sticky substances called mucous. Function-absorption



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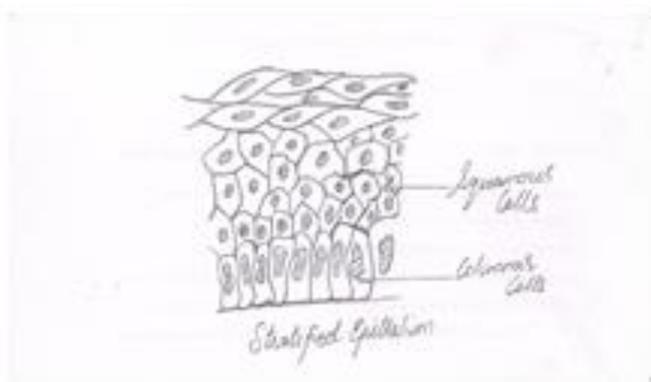
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iv) Ciliated epithelium:-This is formed by columnar cells with fine hair like protoplasmic processes called cilia, capable of wave like movements. They move the contents in a particular direction. Found lining most of the respiratory passages and uterine tubes. In respiratory passages, it propels mucous towards throat and in the uterine tube, it propels ova towards the uterus



3) **Compound epithelium:-**Consists of number of layers of cells, protecting underlying layers of cells.

i) Stratified epithelium:-Deepest layer of columnar cells which becomes flattened at the surface due to constant migration of cells from deep layer to the surface. At the surface the cells die and lose their nuclei. Such cells form a hard substance called 'keratin'. Such keratinized epithelium is found on dry surfaces like skin, hair and nails, whereas nonkeratinized epithelium is found on wet surfaces lining mouth, pharynx, esophagus and conjunctiva of eyes.



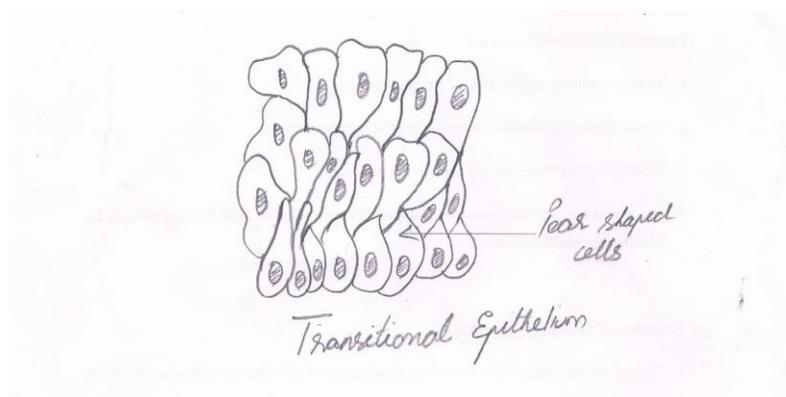
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ii) **Transitional epithelium**:- Composed of several layers of pear shaped cells ,a stage between simple and stratified epithelium hence called transitional epithelium .Superficial layer of oval shaped cells held together by intercellular cement, slimy and allows the cells to slip on one another. Found lining accessory structures of ureters, urinary bladder and urethra.



d) Name the hormones of anterior pituitary gland and state their role in the body.
(Names1M, Role-2.5M)

Ana:- The hormones secreted by anterior lobe of pituitary gland are:-

- 1) Growth Hormones (GH)
- 2) Thyroid Stimulating Hormone (TSH)/ Thyrotrophic Hormone
- 3) Adrenocorticotrophic Hormone (ACTH)
- 4) Prolactin
- 5) Gonadotropic Hormone-FSH & LH

- 1) **Growth Hormone (GH)**:- It stimulates protein synthesis in growth and repair all tissues.
- 2) **Thyroid Stimulating Hormone (TSH)**:- It controls the growth and activity of thyroid gland and stimulates its secretion.
- 3) **Adrenocorticotrophic hormone (ACTH)**:- It controls secretion of adrenal cortex hormone
- 4) **Prolactin**:-It has direct effect on mammary glands, it stimulates mammary glands to secrete milk. It causes expulsion of placenta after delivery.
- 5) **Gonadotrophic Hormone**:-It consists of i) Follicle Stimulating Hormone (FSH);- In female it stimulates ovarian follicle to produce mature ovum. In males, it stimulates the formation of spermatozoa in testes
.ii) Leutinising Hormone (LH):- In female it stimulates corpus leuteum to produce progesterone. In males it stimulates interstitial cells to produce testosterone.



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e) Define blood. Give composition of blood. (Def-1M,Comp-2.5M)

Ans:-**Def:-** Blood is a fluid connective tissue circulated in the body and consists of blood cells ,suspended in intercellular fluid called plasma.

Composition of blood:-It is composed of liquid matrix plasma (55%) & different cells suspended in it (45%).

Plasma: - Composition:- Water-90-92%, plasma proteins, inorganic salts, nutrients, waste material, hormones & gases.

Blood Cells: - Red blood cells / Erythrocytes, white blood cells / leucocytes and Platelets or Thrombocytes.

f) Define and give normal values of

i)**Blood pressure (2 marks)**-It is the radial force exerted by blood on the walls of the blood vessels during systole and diastole of heart .The pressure exerted during systole is called systolic pressure while pressure exerted during diastole is diastolic pressure.

Normal Value:-120/80 mm of Hg

ii) **Pulse: - (1.5 marks)**It is the rhythmic wave of expansion and elongation of arterial walls passively produced by the pressure changes during systole and diastole of ventricles.

Normal Value:- 60-80 per minute.

Q 5. Attempt any FOUR of the following:

(14 marks)

a) Explain with example feedback mechanism of secretion of hormones.(2 Marks for positive and 1.5 marks for negative feedback mechanism)

The level of a hormone in the blood is variable and self-regulating within its normal range.

Regulation of Hormones by two mechanisms:

1. Positive Feedback Mechanism
2. Negative Feedback Mechanism

Positive Feedback mechanism: The effect of a *positive feedback mechanism* is amplification of the stimulus and increasing release of the hormone until a particular process is complete and the stimulus ceases. e.g. release of oxytocin during labour.

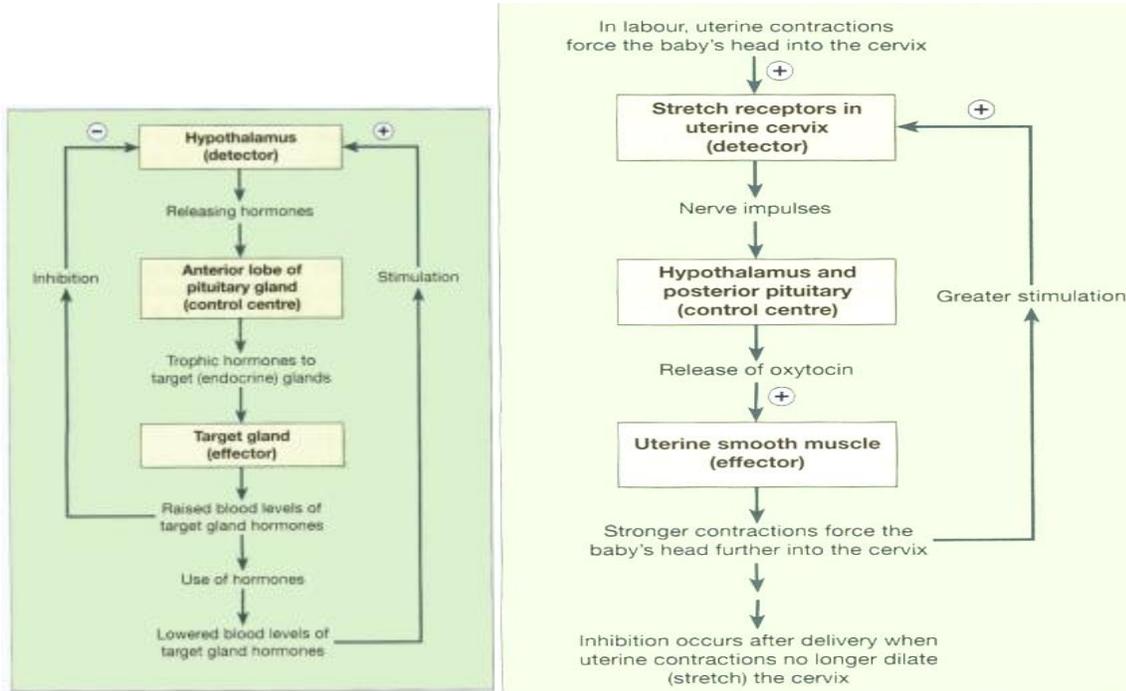
Negative feedback mechanism: The increased level of hormone is detected by detector organ e.g. hypothalamus and its release is controlled.e.g. Growth hormone, FSH.

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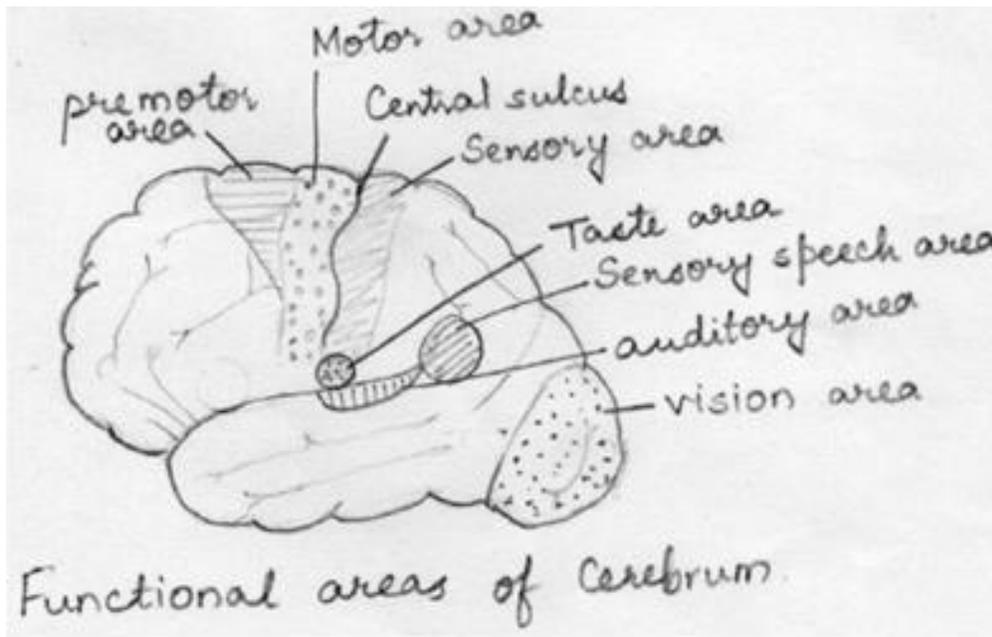
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b) Draw a well-labelled diagram of cerebrum showing functional areas of cerebrum(3.5mks)





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c) Describe physiology of muscle contraction in short.(3.5 Marks)

Physiology of muscle contraction: Sliding-Filament mechanism:

In this process, thin filaments slide inward over thick filament and may overlap.

As a result sarcomere shortens. Shortening of sarcomeres causes shortening of whole muscle fiber, which causes shortening of entire muscle i.e. contraction

Contraction Cycle: Propagation of Muscle Action Potential (MAP) initiates the process of contraction. It causes opening of Ca^{2+} channel in sarcolemma. Ca^{2+} flows into sarcoplasm around the thick and thin filaments.

Ca^{2+} combines with troponin and changes its shape. This change moves troponin-tropomyosin complex away from myosin binding site on actin. Then contraction cycle begins. Four Steps:

1. ATP Hydrolysis -The myosin head includes ATP-binding site and ATPase. Myosin heads hydrolyze ATP and become reoriented and energized.
2. Formation of Cross bridges- The energised myosin head attaches to myosin binding site on actin and releases phosphate group. This attachment is referred as Cross bridge.
3. Powerstroke-release of ADP from myosin head and with force cross bridges moves toward the centre of sarcomere i.e. sliding of thin filament over thick filament. This is termed as Powerstroke.
4. Detachment of myosin from actin- At the end of power stroke, the cross bridges remains firmly attached to actin until another molecule of ATP binds to myosin. Then myosin head detaches from actin. The contraction cycle continues as long as ATP is available and Ca^{2+} level near the filament is sufficiently high.

OR

The motor pathway from the brain to the muscles involves two neurons. The upper motor neuron & the lower motor neuron. The axon of this neuron reaches the muscle. Near the termination in the muscle, the axon branches into tiny fibres that form the motor end plate near the muscle fibre. When a nerve impulse reaches neuromuscular junction, The neuro transmitter released is Acetyl choline at this junction. This changes the permeability of the cell membrane to sodium & calcium ions .As a result the muscle becomes depolarized. This causes muscle contraction. The acetyl choline is hydrolysed by enzyme acetylcholine esterase .The calcium ion concentration is decreased in the muscle which causes repolarization which leads to relaxation of muscle.

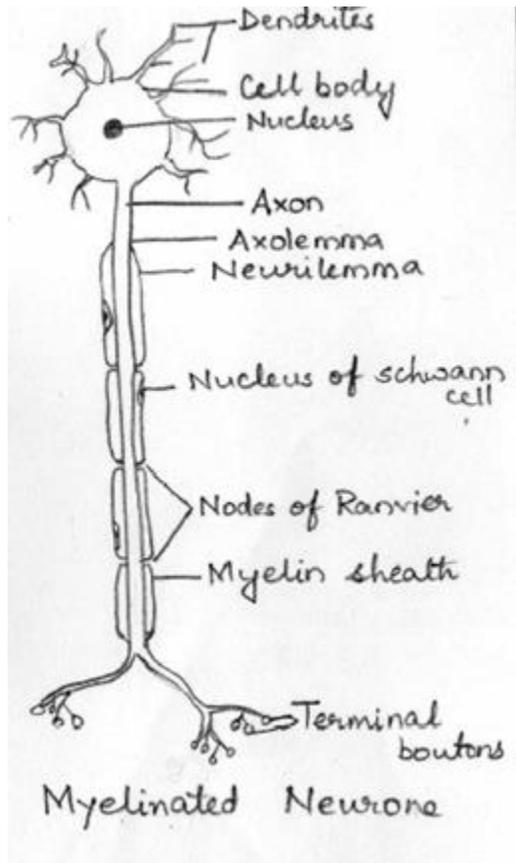
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b) Draw a neat labelled diagram of Neuron and explain.(2 marks –diagram, 1.5 marks-
explanation)



Parts of Neuron 1.Cell body 2.Dendrites 3.Axon

Cell Body: Vary in size & shape; contains nucleus surrounded by cytoplasm, contains lysosomes, mitochondria, Golgi complex & clusters of ER-Nissl bodies

Dendrites: receiving portions of neuron; usually short, tapering & highly branched. Contains Nissl bodies, mitochondria.

Axons :Each nerve cell has only one axon,(myelinated or non-myelinated) carrying nerve impulses away from the cell body. They are usually longer than the dendrites, sometimes as long as 100 cm.

- Structure of an axon: *axolemma* -The membrane of the axon, it encloses the cytoplasmic extension of the cell body.



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- Large axons and those of peripheral nerves are surrounded by a *myelin sheath*. This consists of a series of *Schwann cells* arranged along the length of the axon. Each one is wrapped around the axon so that it is covered by a number of concentric layers of Schwann cell plasma membrane. Between the layers of plasma membrane there is a small amount of fatty substance called *myelin*.

c) Mention the function of ovaries.(3.5 Marks)

Functions of ovaries-

1. Maturation of the follicle is stimulated by FSH from anterior pituitary, and oestrogen is secreted by the follicle lining cells.
2. Ovulation is triggered by LH by anterior pituitary.
3. After ovulation the follicle lining cells develop into corpus luteum (yellow body) under the influence of LH.
4. The corpus luteum produces progesterone & some oestrogen.

f) Define- i) Meningitis: It is inflammation of the Meninges. **(1 mark)**

ii) Leukemia: It is the malignant proliferation of WBC precursors by the bone marrow.

The proliferation of immature cells crowd out other blood cells **(1.5marks)**

iii) Stenosis: It is a narrowing or stricture of a passage or vessel. **(1 Mark)**

Q6. Attempt any FOUR of the following.

(14 Marks)

a) What is puberty? What physical and physiological changes occur in female at puberty? (Puberty definition- 1 mark, Changes- 2.5 marks)

Puberty is defined as age at which the internal reproductive organs reach maturity. It marks the beginning of child bearing age.

Age of puberty varies between 10-14 years. Ovaries are stimulated by FSH & LH.

No. of physical & physiological changes takes place during puberty:

1. The uterus, uterine tubes & ovaries reach maturity
2. The menstrual cycle & ovulation begins
3. The breasts develop & enlarge
4. Pubic & axillary hair begins to grow
5. Increase in rate of growth of height & widening of pelvis
6. Increase in amount of fat deposited in subcutaneous tissue



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b) Classify Leucocytes and describe their functions.(Classification- 1 Mark, Functions- 2.5 marks)

Leukocytes are classified into 2 groups: 1. Granulocytes 2.Agranulocytes

GRANULOCYTES

1. Neutrophils
2. Eosinophils
3. Basophils

AGRANULOCYTES

1. Monocytes
2. Lymphocytes

• **Functions of Leukocytes**

- Neutrophils: -Phagocytosis: destruction of bacteria
- Eosinophils:-phagocytize antigen-antibody complex, parasitic invasion; overcomes effects of histamine involved in inflammation during allergic reactions.
- Basophils:-liberate heparin, histamine & sertotonin at inflammation site in allergic reactions, that intensify overall inflammatory response
- Lymphocytes: These develop into plasma cells which secret antibodies
- Monocytes: Phagocytosis



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c)List any seven cranial nerves and write their functions. (Any seven nerves Each-0.5 mark)

Name and No. of Cranial Nerve	Function
I. Olfactory (sensory)	Sense of smell
II. Optic (sensory)	Sense of sight Balance
III. Oculomotor(motor)	Moving the eyeball Focusing Regulating the size of the pupil
IV. Trochlear(motor)	Movement of the eyeball
V. Trigeminal(mixed)	Chewing Sensation from the face
VI. Abducent(motor)	Movement of the eye
VII. Facial (mixed)	Sense of taste Movements of facial expression
VIII. Vestibulocochlear(sensory) a) Vestibular (b) Cochlear	Maintenance of balance Sense of hearing
IX. Glossopharyngeal (mixed)	Secretion of saliva Sense of taste Movement of pharynx
X. Vagus (mixed)	Movement and secretion
XI. Accessory(motor)	Movement of the head, shoulders, pharynx and larynx
XII. Hypoglossal(motor)	Movement of tongue



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d) Differentiate between sympathetic nervous system and parasympathetic nervous system.

(Each point 0.5 mark)

Sympathetic division	Parasympathetic division
Called as thoraco lumbar outflow	Called as cranio sacral out flow
Ganglia near the spinal cord	Ganglia near the effector organ
Short pre ganglionic fiber	Long preganglionic fiber
Long post ganglionic fiber	Short post ganglionic fiber
Also known as Adrenergic system	Also known as Cholinergic system
It prepares body for fight and flight response	It is a peace maker which allow Restoration processes to occur quietly.
Neurotransmitter is noradrenaline	Neurotransmitter is acetylcholine

e) Define and explain following terms:

i) **Hemolytic anaemia:** It is a condition in which red blood cells are destroyed and removed from the bloodstream before their normal lifespan is over. (1mark)

ii) **Atherosclerosis:** It refers to the deposition of fats, cholesterol and other substances in mid size and large artery walls (plaques), which can restrict blood flow. (1.5 marks)

iii) **Nephritis:** It is inflammation of the kidneys and may involve the glomeruli, tubules, or interstitial tissue surrounding the glomeruli and tubules. (1 mark)

d) Give composition and functions of salivary glands. (Composition 1 mark, function- 2.5 marks)

There are three pairs of salivary glands - parotid, submandibular, sublingual.

Salivary glands are composed of glandular epithelium in form of clusters. They have duct system which opens into oral cavity. Function of salivary glands is to secret saliva.



SUMMER – 15 EXAMINATION

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Model Answer

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Composition of saliva-P^H 5.8 -7.4

water

mineral salts

salivary amylase

mucus

lysosomes

immunoglobulin

blood clotting factor

Functions of saliva-

1. Chemical digestion of polysaccharides- the salivary amylase acts on the starch & reduces them to disaccharides.
2. Lubrication of food.
3. Cleaning & lubricating the mouth.
4. Non specific defense mech. Due to lysosomes & immunoglobulin.
5. Sense of Taste by lubrication of food.