



SUMMER– 14 EXAMINATION

Subject Code:**17436**

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.



Q.1.	Attempt any ten of the following	20
a)	Define joints Ans: The union of two or more bones of the skeleton is described as joint or articulation. Or A joint is the side at which any two or more bones come together.	02
b)	Properties of cardiac muscles 1)Excitability: Ability of cell to respond by generation of action potential when adequately stimulated 2) Atomicity/Autorthymicity:It refers to ability of cardiac muscle to initiate its own impulse at constant rthymical interval known as Autorthymicity. 3)Conductivity: Transmission of impulse from one part to another part with help of specialized conducting tissue. 4)Contractivity: Ability of cardiac muscles to actively generate force to shorten and thicken to do work when adequate stimulus is applied. 5)Long refractory period: It is the interval of time during which a normal cardiac impulse can't excite the already excited area of muscle.	02 Any 2
c)	Define Blood pressure Ans: The blood pressure is defined as the pressure , the blood exerts against the wall of the vessels in which it is contained. or Blood pressure is the pressure of blood applied against the arterial walls resulted due to the force generated by contraction of left ventricle and conducted through arteries of the entire body.	02
d)	Classification of nervous system Ans: The nervous system is classified as follows: 1)Central Nervous System(CNS)-consists of brain and spinal cord. 2)Peripheral Nervous System(PNS)-32 pairs of spinal nerves,12 pairs of cranial nerves and the autonomic part of nervous system.	02
e)	Define cell The cell can be defined as a block of protoplasm surrounded by membrane. Or	02



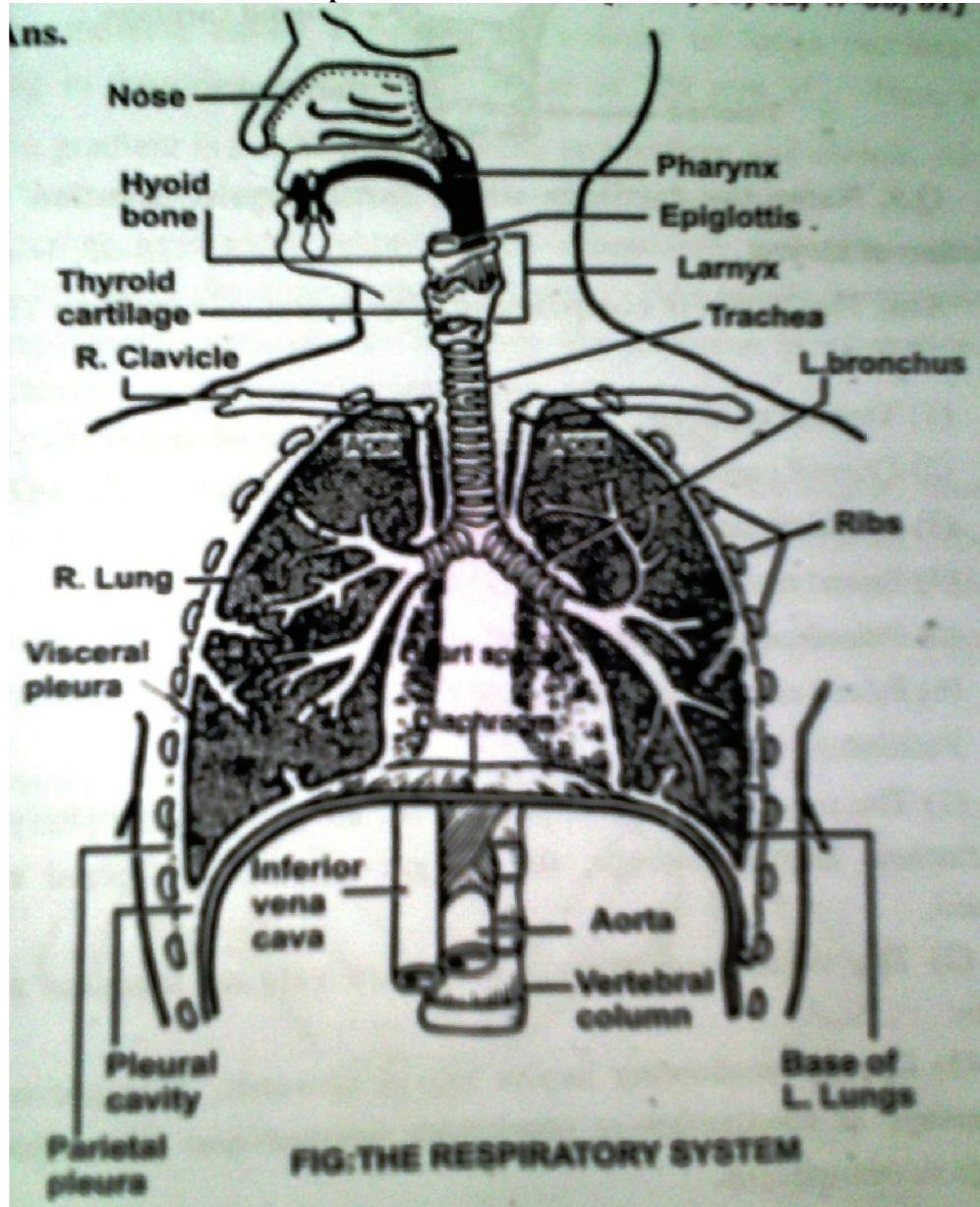
	The smallest living unit composed of a minute mass of proplasm.	
f)	Enlist four blood group systems 1.ABO System 2.Rh System 3.MNS System 4.Kell System 5. Duffy system 6.Lutheran system	02 Any 4
g)	Instruments used in Urinary disorder 1.Cystoscopy 2.Ureteroscopy 3.Uroflowmetry 4.Haemodialysis	02
h)	Define i)Repolarization: The normal state of cell which is regained after depolarization in which the inside of the membrane is again negative with respect to outside. This process is called Repolarization. ii)Depolarization: When the cell is excited or stimulated, outer side of the cell membrane becomes momentarily negative with respect to the interior. This process is called depolarization .	02
i)	Location of Pharynx and Trachea. Situated posterior to the nasal and oral cavities and posterior to larynx. Trachea lies partly in neck and partly in thorax.	02
j)	Enlist organs of Digestive System The following are the organs of digestive system 1)Alimentary canal- Consists of a)Mouth cavity b)Pharynx c) Esophagus d)Stomach e) Small Intestine f)Large Intestine g)Rectum and anal canal. 2)Accessory organs – a)Three pairs of salivary glands b)Pancreas c)Liver and the billiary tract.	02
k)	Define Hormones The secretions of the endocrine glands are named as hormones. Hormones are the chemical substances which are formed in endocrine gland and carried by blood to other distant organ or tissue, thereby controlling their activity. Chemically, hormones are peptides, steroids, amines, or derivatives of amino acids.	02
l)	Function of Thyroid gland Thyroid glands have three functions 1)Regulation of metabolism 2)Regulation of growth and development 3)Regulation of activity of the nervous system	02
m)	Composition of gastric juice The gastric juice consists of: 1. water 2.Mineral salts secreted by gastric glands 3.Mucus is secreted by cells in the gland and on the stomach surface	02 Any 4



	<p>4.Hydrochloric acid</p> <p>5.Intrinsic factor are secreted by parietal cells in gastric glands.</p> <p>6.Enzymes pepsinogen secreted by chief cell in the glands.</p>	
n)	<p>Enlist Endocrine glands</p> <ol style="list-style-type: none"> 1. Pituitary gland 2. Thyroid gland 3. Parathyroid gland 4. Adrenal glands 5. Pancreas 6. Ovaries 7. Testes 8. Pineal 	02 Any 4
2.	Attempt any four of the following	16
a)	<p>Describe structure of cell</p> <p>Ans:</p> <div style="text-align: center;"> </div> <p>It is fundamental unit of all body tissue.The living cell is made up of protoplasmic substance which is slightly opaque,colourless,soft jelly like substance.Protoplasm consists of large amount of water and other substances in solution.The cell consists of centrally located mass called nucleus which is surrounded by nuclear membrane.The protoplasm inside the nucleus is known as nucleoplasm whereas protoplasm outside the nucleus is known as cytoplasm which is surrounded by outermost layer of cell known as plasma membrane.The cytoplasm performs different functions directed by nucleus.The various orgenells in the cytoplasm are plasma membrane ,endoplasmic reticulum,golgi apparatus mitochondria,lysosomes, etc Besides these organelles , the cell also contains organic and inorganic salts,carbohydrates,proteins and fats.Nucleus is the control of the cell,that consists of large amount of deoxyribonucleic acid and ribonucleic acid,nucleoli,chromatin etc.</p>	04 02 02
b)	<p>Define heart rate and write it's significance</p> <p>Ans</p> <p>The number of heart beats per unit of time usually per minute.</p> <p>The heart rate is based on number of contractions of ventricles.The heart rate may be too fast</p>	04 02 02

(tachychardia) and too slow bradycardia. Thus tachychardia and bradycardia conditions can be identified with heart rate.

c) Describe in detail mechanism of respiration



The main purpose of respiration is to provide constant supply of oxygen to the cells of the body and removal of carbon dioxide produced by cellular activity. The three basic processes of respiration are

1. Pulmonary ventilation
2. External respiration
3. Internal respiration

1. Pulmonary ventilation consists of three phases

Inspiration (breathing in)

Expiration (breathing out)

Pauses

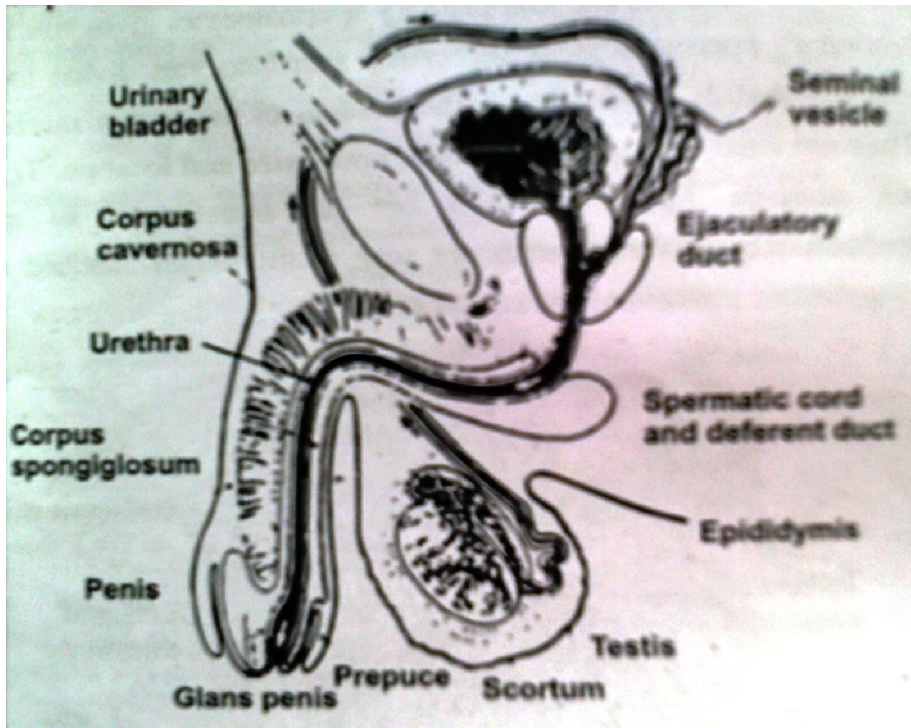
Inspiration means breathing in the air through the nose and mouth during breathing. Air then passes through the trachea into the lungs and finally it flows to alveoli. The process is initiated by muscular contraction. Here the diaphragm and external intercostal muscles get contracted. This results in expansion of thoracic cavity. This increase in lung volume causes rushing of atmospheric air into the lungs. Air inhaled through trachea, finally flows to alveoli in lungs. Alveoli comes in direct contact with

04

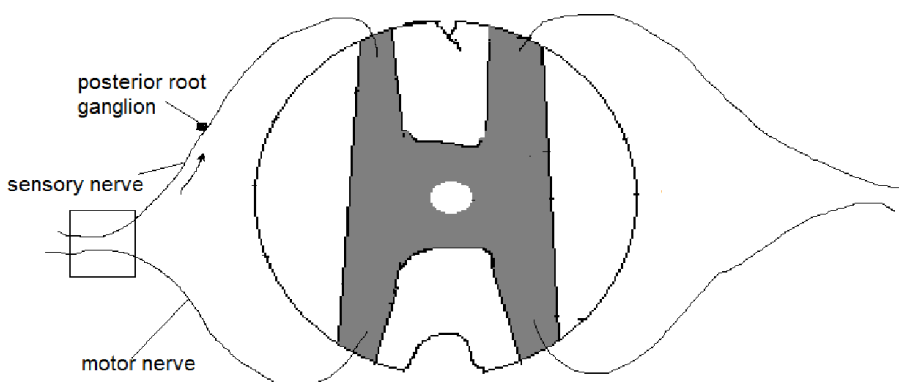
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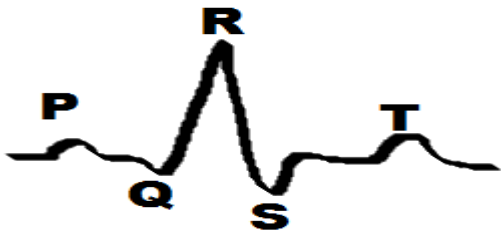
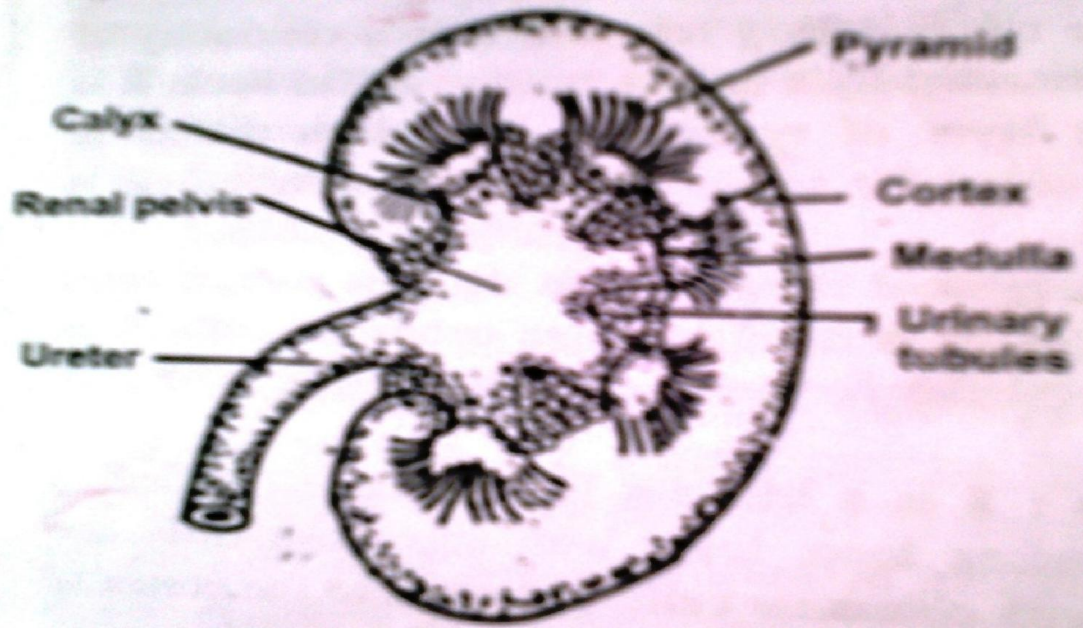
	<p>blood in capillaries. Oxygen passes across this membrane and is taken up by the hemoglobin of red blood cells and called pure blood this is pumped in arteries to all parts of body The exchange of gases between alveoli and blood capillaries surrounding ,is termed as external respiration.</p> <p>Internal respiration: At completion of the external respiration ,pure blood reaches heart and pumped out from left ventricle to the aorta and finally to tissue cells through the systemic arteries. The exchanges of gases between tissue blood capillaries and tissue cell is termed as internal respiration. Because of difference in partial pressures, oxygen diffuses from blood to cells whereas carbondioxide from tissue to blood till equilibrium is reached. Thus this deoxygenated blood from tissue capillaries enters t o heart, from heart it is pumped to lungs for purification by external respiration.</p>	
<p>d)</p>	<p>Name instruments used in Urinary system</p> <ol style="list-style-type: none"> 1.Cystoscopy 2.Ureteroscopy 3.Uroflowmetry 4.Haemodialysis 	<p>04 Any 04</p>
<p>e)</p>	<p>Describe male reproductive system Ans:</p>  <p>The male reproductive organs include testis within the scrotum, pair of seminal vesicles and ducts, ejaculatory duct, epididymis and bulbourethral glands .Prostate gland, penis and urethra are single structure only. The testis are the male organs of the generation Spermatozoa,male sex hormones testosterone are produced by testis. Testosterone a male sex organ hormone, is secreted by interstitial cells. It is responsible for development of secondary sex characteristics. The testis opens into the epididymis .Inthe epididymis spermatozoa undergoes complete maturation and become mobile. They are capable of fertilizing an ovum. In the continuation of epididymis is seminal duct. It joins with seminal vesicle to form ejaculatory duct. The prostate gland is situated at the beginning of urethra just below the urinary bladder. they secrete an alkaline milky fluid which neutralizes acidity of vaginal secretions an semen. The penis is the organ of copulation through which passes the urethra. It serves as common passage way or urine and for semen. The expanded Portion of the penis is known as glans penis which is covered by the skin called prepuce or foreskin.The sperms once ejaculated survive for 24</p>	<p>04</p>

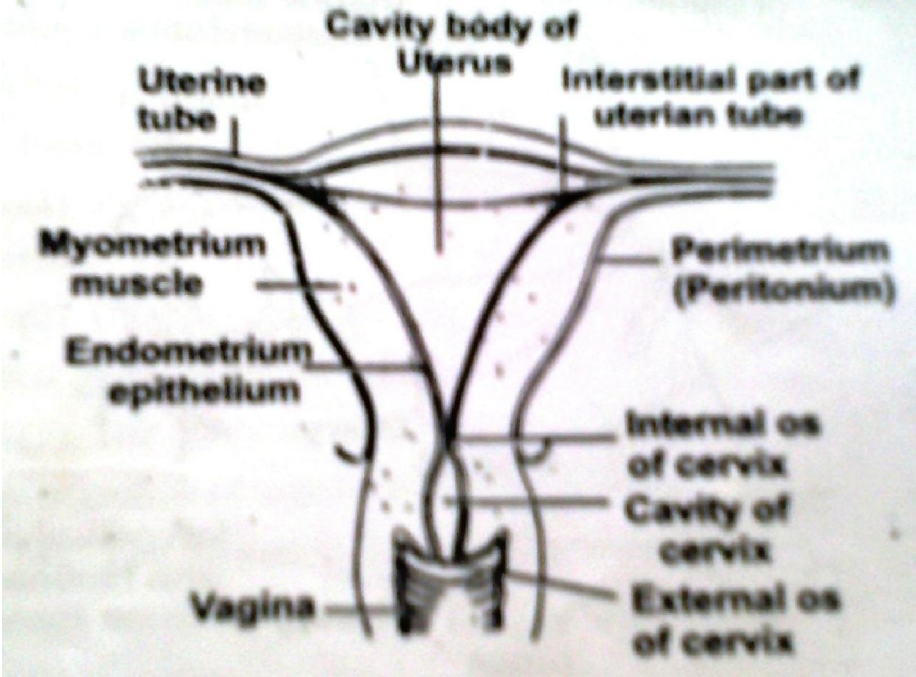


	or 72 hours at normal body temperature.	
f)	<p>Describe peripheral Nervous system. Ans:-</p>  <p>The peripheral Nervous system consists of 31 pairs of spinal nerves arising from spinal cord and twelve pairs of cranial arising from brain. 31 pairs of spinal nerves are distributed as 8 pairs of cervical nerves in cervical region. 12 pairs of thoracic nerves in the thorax. 5 pairs of lumbar nerves in lumbar region. 1 pair of coccygeal nerve. Spinal nerve is formed by union of sensory and motor nerves. Branches of nerves unite to form a structure called plexuses. Nerves are made up of single neuron which carries nerve impulses or they are made up of chain of neurons.</p> <p>Types of nerves</p> <p>a) Motor nerve-impulses from brain and spinal cord to other parts of body. b) Sensory nerve-impulses from periphery of body to spinal cord and then to brain. c) Mixed nerves: Afferent and Efferent nerves are enclosed within the same tube of connective tissue. They are called mixed nerves.</p>	04 02 02

Q3)	Attempt any four of the following.	12
a)	<p>Write (any four) functions of the blood.</p> <p>Ans:-</p> <ol style="list-style-type: none"> 1) Respiratory function:- Blood carries O₂ from lungs to parts of the body and CO₂ from body to lungs 2) Digestion:- In digestion the products are formed, these products are carried to the liver through blood. 3) Excretory:- Waste products are transported by blood. 4) Acts as internal environment to cells of body. 5) It regulates the temperature of the body. 6) Formation of antibodies. 7) Acts as a transport media for the hormones, vitamins etc. 	(04)
b)	<p>Describe electrical activity of the Heart.</p> <p>Ans:- When muscles contract, there is a change in electrical potential across the membrane of muscle fiber. This is true in case of cardiac muscles also. As the body fluids and tissue are good conductors of the electricity, the electrical changes occurring in the contracting myocardium can be detected by attaching electrodes to the surface of the body. The pattern of the electrical activity may be displayed on the oscilloscope screen or printed out on paper. This tracing is called as Electrocardiogram (ECG).</p>	(04)



		<table border="1"> <thead> <tr> <th>Point</th> <th>Significance</th> </tr> </thead> <tbody> <tr> <td>P</td> <td>Contraction of Atria</td> </tr> <tr> <td>QRS</td> <td>Spread of contaction pulse over ventricles & relaxation of Atria</td> </tr> <tr> <td>T</td> <td>Relaxation of Ventricles and starting of the contraction of Atrium</td> </tr> </tbody> </table>	Point	Significance	P	Contraction of Atria	QRS	Spread of contaction pulse over ventricles & relaxation of Atria	T	Relaxation of Ventricles and starting of the contraction of Atrium	
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<p>c)</p>	<p>Name instruments used in respiratory disorders. Write any four diseases.</p> <p>Ans:- instruments</p> <ol style="list-style-type: none"> 1) Ventilator 2) Spiro meter 3) Nebulizer <p>Respiratory disorders:</p> <ol style="list-style-type: none"> 1) Bronchitis 2) Asthma 3) Respiratory tract infection 4) Lung cancer 5) Bacterial pneumonia 6) Pulmonary embolism 	<p>(04)</p> <p>02 (Any 2)</p> <p>02 (Any 4)</p>									
<p>d)</p>	<p>Describe Anatomy of kidney.</p> <p>Ans:-</p> 	<p>04</p>									

	<p>The kidney is reddish brown in colour. They are two in numbers. Kidney is been shaped organ situated in the abdominal region close to the posterior wall. Kidney is the primary organ in urinary system which performs the main function of formation of urine. A fibrous capsule surrounds the kidneys. Cortex is reddish-brown structure immediately below the capsule. Medulla is the innermost structure consisting of renal pelvis which is funnel shaped structure that acts as a receptable for the urine formed by the kidneys. The functional unit kidney is nephron. There are approximately one million nephron's in each kidney.</p>	
e)	<p>Describe female reproductive system.</p> <p>Ans:-</p>  <p>The female reproductive organs are divided in to two categories</p> <ol style="list-style-type: none">a) External genitalia- these are collectively called as vulva. It consists of the following,<ol style="list-style-type: none">1. Labia majora are the two large folds which form the boundary of vulva. They are composed of skin and fat.2. Labia minora are two small folds of skin situated between the upper parts of labia majora.3. Hymen is a thin layer of mucous membrane and is perforated centrally to allow menstrual discharge to drain awayb) Internal genitalia- these lie in pelvic cavity and consist of vagina, uterus, two uterine tubes and two ovaries.<ol style="list-style-type: none">1. Vagina is fibro-muscular tube lined with stratified epithelium, supplied with blood vessels and nerves connecting external and internal organs of reproduction.2. Uterus is a hollow muscular, pear shaped organ situated in pelvis. The uterus is a place where embryo grows and develops until the time of delivery. During pregnancy the size of uterus increases to accommodate growing fetus.3. Uterine (fallopian) tubes are the muscular tubes and are four inches in length and extends from upper side of uterus to ovary. They convey ovum from ovaries to uterus.	04

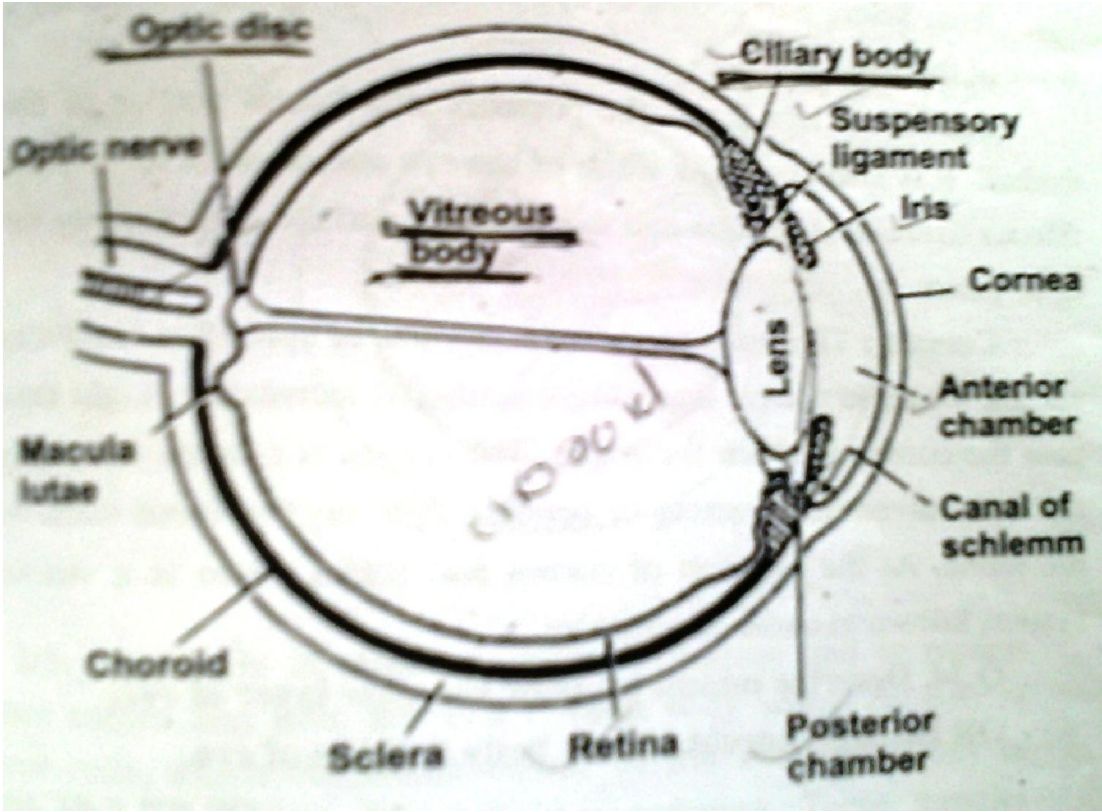


	<p>4. Ovaries are the homologous to testes in male. They form the ova by the process of ovulation. They also forms the estrogen and progesterone</p>																																	
f)	<p>Describe spinal cord.</p> <p>Ans :- it is an elongated and almost cylindrical part of central nervous system. It is situated in the neural canal of vertebral column and extends from atlas above to the first lumbar vertebra below. It continues with the medulla oblongata above. It is about 45cms long and is about the thickness of the small finger. It is surrounded by the dura, arachnoid and piameter. Cerebrospinal Fluid (CSF) is present in the central canal of the spinal cord.</p> <p>The spinal cord is the link of nervous tissue between the brain and the other organs of the body. The nerve conveying impulses from and to the organ enters and leaves the spinal cord at the appropriate level. Thirty one pair of nerves arises from the spinal cord.</p> <p>The transverse section of the spinal cord shows that it is composed of grey matter in the center, surrounded by white matter. The grey matter is arranged in the form of letter “H” showing anterior and posterior horns of grey matter.</p> <div style="text-align: center;"> <p>transverse section of spinal cord</p> </div>	04																																
Q 4.	Attempt any Four of the following	16																																
a)	<p>Explain classification of bones.</p> <p>Ans:-</p> <div style="text-align: center; margin-left: 100px;"> <p>bones</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: center;">On basis of shape</th> <th style="text-align: center;">On the basis of development</th> <th style="text-align: center;">On the basis of structure</th> <th style="text-align: center;">On the basis of position</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Long bone</td> <td style="text-align: center;">Membrane bone</td> <td style="text-align: center;">Cortical or compact bone</td> <td style="text-align: center;">Axial bone</td> </tr> <tr> <td style="text-align: center;">Short bone</td> <td style="text-align: center;">Cartilage bone</td> <td style="text-align: center;">Cancellous or spongy bone</td> <td style="text-align: center;">Appendicular bone</td> </tr> <tr> <td style="text-align: center;">Flat bone</td> <td style="text-align: center;">Membrano-cartilage bone</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Irregular bone</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Sisemoid bone</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Pneumatic bone</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Accessory bone</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> </div>	On basis of shape	On the basis of development	On the basis of structure	On the basis of position	Long bone	Membrane bone	Cortical or compact bone	Axial bone	Short bone	Cartilage bone	Cancellous or spongy bone	Appendicular bone	Flat bone	Membrano-cartilage bone			Irregular bone				Sisemoid bone				Pneumatic bone				Accessory bone				04
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b)	Define cardiac output and how it is measured?	04																																



	<p>Ans:-</p> <p>Cardiac output is the amount of blood ejected each minute from the heart. It is also known as the minute volume. It also takes consideration the rate and force of cardiac contraction.</p> <p>Cardiac output = Stroke volume X Heart rate.</p> <p>For normal human being the values are: Stroke volume = 70 ml Heart rate = 72 per minute So cardiac output = 5040 ml</p> <p>For the measurement of cardiac output first we have to find the stroke volume. One of the techniques to find out the stroke volume is the dye dilution technique. In this technique some liquid is injected to the blood. This liquid can be traced by connecting some sensing circuitry and body being subjected to that arrangement. Once we get the stroke volume the cardiac output can be calculated by taking product of stroke volume and heart rate.</p>	<p>02</p> <p>02</p>
c)	<p>What is respirator? Explain its function.</p> <p>Ans:-</p> <p>Respirator is a mask like device that filters fine particles from the inhaled air. It usually takes the form of partial or full face mask that is secured in a place with a strap. It is fitted near the nose and the mouth area.</p> <p>Functions of the respirator:- respirator does not perform any actual breathing function for its wearer. Instead its purpose is to purify inhaled air before it enters lungs by trapping harmful particles and fumes. It consists of the filters that separate these harmful particles from the inhaled air.</p>	<p>04</p> <p>02</p> <p>02</p>
d)	<p>Describe the formation of urine.</p> <p>Ans:-</p> <p>Kidneys filter out the waste material from the blood & secrete in the form of urine. The urine formation occurs in three stages.</p> <ol style="list-style-type: none">1. Glomerular Filtration:-The afferent arteriole carry blood to glomerulus & efferent arterioles carry blood away from glomerulus. The wall of glomerular capsule acts as a filter & hence filtration is under pressure.2. Selective Re-absorption:-It is the process by which the composition & volume of glomerular filter is altered during its passage through tubule.3. Active secretion:-Non-threshold substances which are not filtered by capsule are carried in the capillaries of efferent arteriole & are cleared by secretion into the tubule.	<p>04</p>
e)	<p>Write the function of female Hormone.</p> <p>Ans:-</p>	<p>04</p>



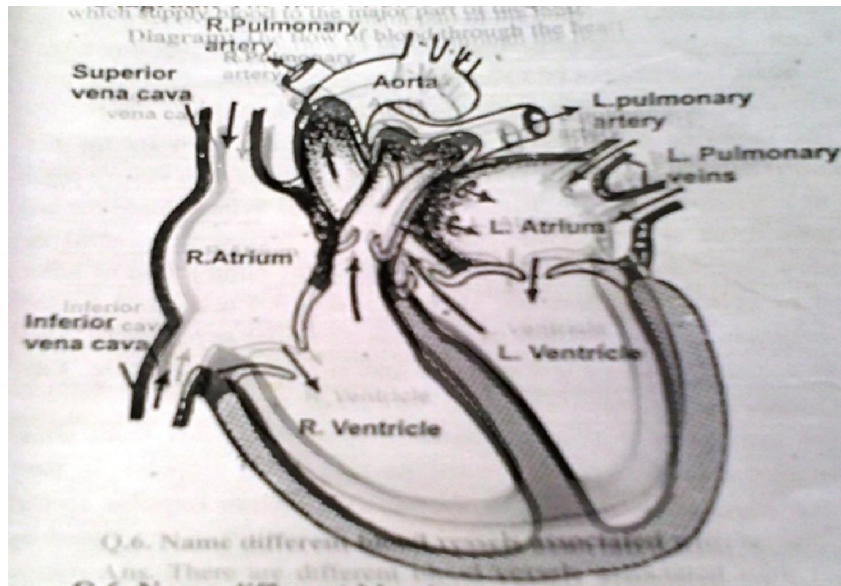
	<ol style="list-style-type: none">1) It promotes the growth and development of ovaries, uterus, vagina and fallopian tubes.2) It promotes the motility of fallopian tube which plays an important role in transport of sperms.3) Estrogen is responsible for the development of female secondary sexual characters.4) It is responsible for the proliferative stage of menstruation.5) Eestrogen causes increased fat deposition in subcutaneous tissues and also in other particular regions to make a typical feminine body.6) It causes growth of uterus during pregnancy.	04 (any4)
f)	<p>Draw a well labeled diagram of eye.</p> <p>Ans:-</p> 	04
Q 5)	Attempt any four of the following.	16
a)	<p>Define tissue & write their function.</p> <p>Ans:-</p> <p>Definition:-Tissues means group of cells specially developed for carrying out certain specific function.</p> <p>Epithelium tissues:-These tissues protect underlying tissues against friction or injury.</p> <p>Muscular tissues:-These tissues are contractile so helps to produce movements of muscles.</p> <p>Nervous tissues:-They carry out special function of carrying message of stimuli within the body.</p> <p>Connective tissue:- they helps in maintaining body structure and transport of hormones and body essentials.</p>	04 02 02

b)

Describe the anatomy of Heart.

04

Ans: -



The blood circulation in human body is carried out & maintained by a hollow muscular organ with the help of various vessels linked with it. The hollow muscular organ is called heart & it is linked to blood vessels. It lies in center of thorax & between the two lungs; but is more to

the left of the middle. It is cone-shaped & presents a base above & apex below. It is of the size of a closed fist of the individual. It composed of three layers of tissues.

1. The Pericardium
2. The myocardium
3. The endocardium

It consists of four chambers, two atrium and two ventricles. It has non-returning valves in between atrium and ventricles. Atrium and ventricles are divided by the septum.

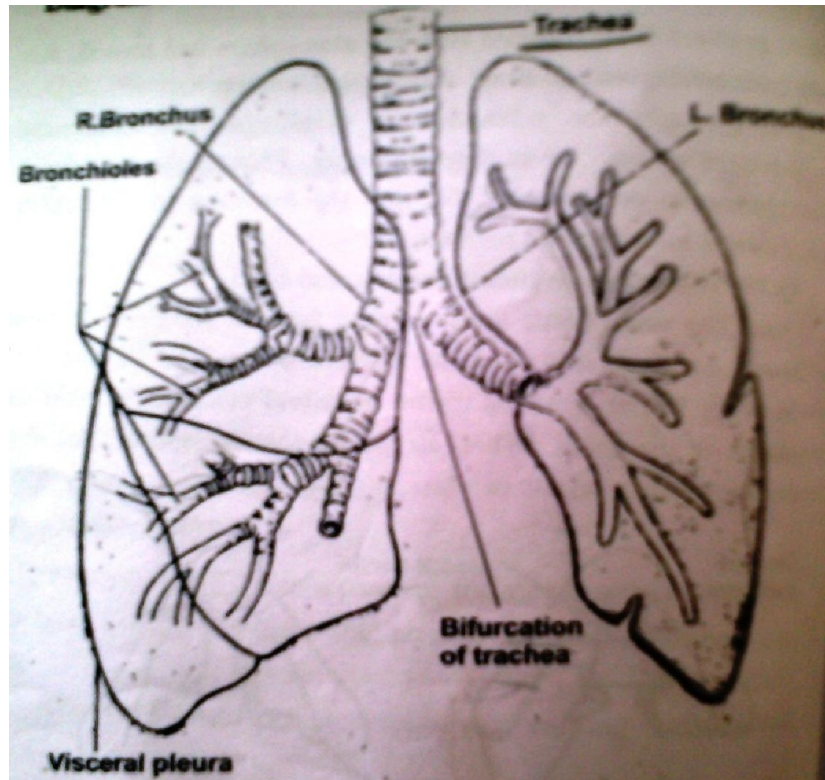
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c)

Describe anatomy of Lungs & their functions.

04

Ans:-



Lungs are principle organs of Respiration. They are two in numbers & fill the cavity lying one on each side. They are cone shaped with apex above. The base rests on the floor of thoracic cavity on the diaphragm. The lungs are divided into lobes by tissues. The right lung has three lobes & left lung has two lobes. Each of the lobes is composed of a number of lobules. Each lobule contains a small bronchial tube which is an extension of bronchi. Each lung is surrounded by Pleura. This provides the lungs with the elasticity.

Functions:-It is the main site for the exchange of gases (O_2 & CO_2) blood through the capillaries circulates in to the lung and reaches up to the alveoli. This is actual site of exchange of gases.

d) **Write name of digestive juices & their functions.**

Ans:- Digestive juices

- 1) Saliva
- 2) Gastric Juice
- 3) Pancreatic Juice
- 4) Bile Juice

Saliva-



- 1) Mucin in the saliva lubricates the food thus assisting in mastication and swallowing.
- 2) It also aids in speech by facilitating movements of lips and tongue.
- 3) The lysozymes, lactoferrin, IgA present in the saliva minimizes risk of buccal infection and dental caries.
- 4) Ptyalin helps in digestion of starch.
- 5) Saliva keeps mouth moist.
- 6) Saliva serves as a solvent for molecules that stimulates the taste buds.

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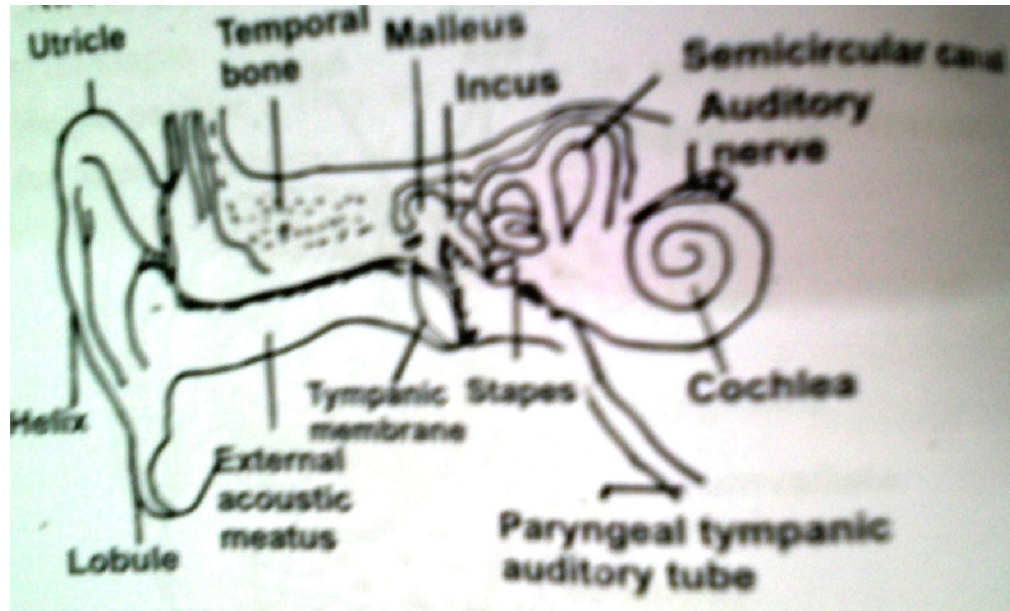


	<p>7) Saliva helps in maintain oral hygiene.</p> <p>Gastric Juice-</p> <ol style="list-style-type: none">1) The gastric juice contains proteolytic enzyme which helps in the digestion of protein.2) The intrinsic factor plays an important role in erythropoiesis.3) The mucus present in the gastric juice protects the stomach wall from mechanical and chemical injury as well as from the digestive action of pepsin and hydrochloric acid.4) Hydrochloric acid kills the bacteria entering the stomach. <p>Pancreatic Juice-</p> <ol style="list-style-type: none">1) Pancreatic juice has important digestive and neutralizing functions.2) It plays an important role in the digestion of carbohydrates, proteins and lipids.3) Pancreatic juice contains bicarbonates enzymes which neutralize the acidity of chyme entering the intestine. <p>Bile Juice-</p> <ol style="list-style-type: none">1) Bile salts are help in digestion and absorption of fat and fat soluble vitamins (A, D, E, K).2) Neutralization of acid entering intestine from the stomach.3) Excretion of drugs, toxins, bile pigments, hormones, inorganic substance, cholesterol and lecithin.4) Bile has a laxative action and stimulates peristalsis.	
e)	<p>Describe central nervous system.</p> <p>Ans:- the central nervous system consists of brain present in the cranial cavity and spinal cord present in the vertebral column.</p> <p>Brain:- the peripheral part of the brain is made of grey matter and the medulla of the brain is made of white matter. The brain and the spinal cord are completely surrounded by three meanings or membranes which lie between the skull and the brain. They are named as</p> <ol style="list-style-type: none">1) The duramater 2) piameter 3) arachnoidmater. <p>The brain is formed of cerebrum, the mid brain, the pons varolii, the medulla oblongata, the cerebellum.</p> <p>Spinal cord:- it is an elongated and almost cylindrical part of the central nervous system. It is situated in the neural canal of the vertebra</p> <p>Central nerves system (CNS) is related with sensory & motor activity.</p> <p>It enables a person to adjust with external environment. The function of CNS occurs according to the will power of the person. It supplies nerves to skeletal muscles (motor nerves)&Sensory nerves carry impulses from senses organs to brain.</p>	04
f)	<p>Distinguish between skeletal muscle & smooth muscle.</p>	04



	Sr no.	Skeletal muscle	Smooth muscle		
	1	They are under control of the will ie. They are Voluntary muscles	They are not under the control of the will ie. They are involuntary muscles	04 Any4	
	2	Several nucleus can be seen	Only one central nucleus		
	3	Surrounded by fine sheath known as Sarcolemma	There is no distinct sarcolemma but very fine membrane surrounds each fiber.		
	4	They are longer around 35 cm to 45 cm	They are short around 50 μ m to 500 μ m		
	5	They are found in limb muscles and large organs	They forms the walls of viscera example stomach, intestine, urinary bladder, uterus, blood capillaries etc		
	6				
Q. 6)	Attempt any four of the following.			16	
a)	Describe in detail ABO blood group system.			04	
	Blood Group	Agglutigen in RBC / antigen	Agglutinin in Plasma / antibody	Can donate to person with blood group	Can receive the blood from person with blood group
	‘A’	‘A’	‘b’	‘A’	‘A’ , ‘O’
	‘B’	‘B’	‘a’	‘B’	‘B’ , ‘O’
	‘AB’	‘A’ , ‘B’	-	‘A’ , ‘B’	‘A’ , ‘B’ , ‘O’
	‘O’	No agglutigen	‘a’ , ‘b’	‘A’ , ‘B’ , ‘O’	‘O’
b)	Describe anatomy of ear & its function.			04	

Ans:-



Ear is divided into three parts

- 1) External ear:- It helps to collect sound waves. The pinna of ear is irregularly shaped & is composed of cartilage & fibrous tissues. The external auditory meatus conveys the sound waves to the tympanic membrane.
- 2) Middle ear:- It is small chamber internal to the tympanic membrane & contains air. The Eustachian tube runs forward from the cavity of the middle ear into the naso-pharynx where it opens. Thus the air pressure may be equalized on each side of the drum. The auditory ossicle viz malleus, incus and stapes are three small bones arranged across the middle air like a chain reaching from tympanic membrane to the inner ear.
- 3) Internal ear:- It consists of several cavities which channel the temporal bone. It consists of the auditory nerve which finally conveys the information to the cerebral cortex.

Function: -Ear is organ of Hearing.

c)

Describe the cavities in the brain.

04

Ans:-

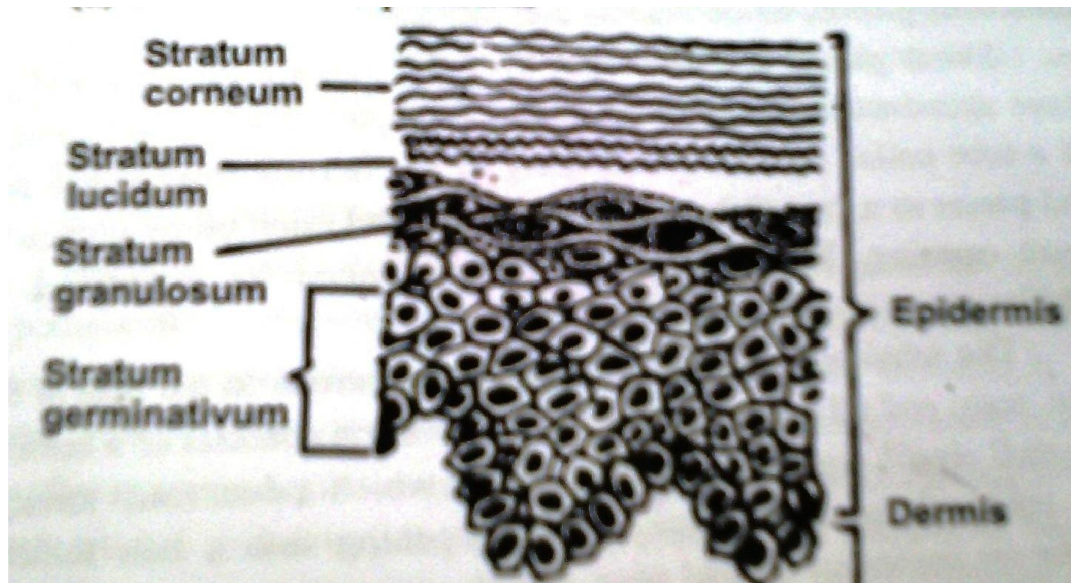
Within the brain there are four irregular shaped cavities or ventricles containing Cerebrospinal fluid.

- 1) Right & Left lateral ventricles:- They lie within the cerebral hemisphere. One on either side of the median plane just below the corpus callosum. They show presence of blood capillaries.
- 2) The Third Ventricle:- It is cavity containing the cerebrospinal fluid (CSF) situated below & behind the lateral ventricle & between the two parts of thalamus. It communicates with lateral ventricles by openings known as interventricular foramina.
- 3) The fourth ventricle:- It is present below and behind the third ventricle and between



	cerebellum and pons varolli. It produces cerebro spinal fluid.	
d)	<p>How gases exchange between a capillary and alveolus.</p> <p>Ans:-</p> <p>The process of respiration is divided into two phases, external respiration and internal respiration. In external inspiration, air which contains oxygen is taken in. It flows along the trachea and bronchial tubes to the alveoli, where it intimate comes into contact with the blood in the pulmonary capillaries. Through the alveolar-capillary membrane, oxygen passes across and is taken up by the hemoglobin of red blood cells. It is then carried to the heart and is pumped in arteries for circulation to all parts of the body. Simultaneously carbon dioxide, which is a waste product of metabolism, passes across the membrane from the blood capillaries to the alveoli. From alveoli, it passes through the bronchial tubes and trachea and is breathed out throw nose and mouth.</p>	04
e)	<p>Name and give functions of hormones secreted by pituitary gland.</p> <p>Ans:-</p> <ul style="list-style-type: none">a) Growth hormone:- it stimulates protein synthesis in growth and repairs all tissues.b) TSH –thyroid stimulating hormone:- when the blood level of thyroid hormone is more then secretion of TSH is reduced and vice versa.c) Adrenocorticotropic:- it controls secretion of adrenal cortex hormones.d) Prolactin:- this hormone affects directly on breast, immediately after parturition.e) Gonadotropic hormone:- It helps to promote the growth and development of ovaries, uterus, vagina and fallopian tubes by the secretion of follicle stimulating hormone and leutinising hormone.f) Oxytocin:- it promotes contraction of uterine musclesg) Antidiuretic hormone:- it increases permeability to water of distal and collecting tubules of nephrone thereby increasing reabsorption of water.	04 Any 4
f)	Describe in detail structure of skin.	04

Ans:-



02

The skin is organ of sensation of touch. The skin covers and protects the body. It is divided in to two layers, epidermis and dermis.

Epidermis: it consists of stratified epithelium consisting of a number of cell layers arranged in two zones viz., horny zone & germinative zone

02

Dermis or true skin : it is made up of fibrous and elastic connective tissue. The surface of the dermis is arranged in small papillae. There are many structures distributed in dermis like blood capillaries, blood vessels, nerve endings of sensory nerves, coiled tubules of sweat glands, sebaceous glands. These glands secrete oily secretion called sebum which prevents drying of skin on exposure to heat.