Biology
Classified MCQ
Unit 5
2000 - 2020

Unit 5 - Animal form and function

Structure and functions of animal tissue.
animal tissue.

(1) Skeletal muscle fibre
(1) is spindle shaped. (2) is striated. (3) shows myogenic contractions.
(4) is uninucleate. (5) never gets fatigued. (2001)

(2) A student, while examining an animal tissue under the light microscope, observe that its cells were resting upon a basal mambrane. which out of the following, would most likely be present in that tissue?
(1) red blood cells (2) collagen fibres (3) large matrix
(4) yellow fibres (5) cilia (2002)

(3) Which is correct about both a cardiac muscle fibre and a smooth muscle fibre?
(1) striated (2) spindle shaped (3) never fatigued
(4) myogenic (5) are under involuntary control. (2002)

(4) Which of the following statements is/are correct regarding a skeletal muscle fibre?
(A) Its contractille activity is controlled by the autonomic nervous system.
(B) It never becomes fatigue.
(C) It is unbranched.
(D) It contains many sacromeres.
(E) It is uninucleate. (2003)

(5) The number of oxygen molecules that combine with a single molecule of haemoglobin is
(1) one (2) two (3) three (4) four (5) five (2004)

(6) Simple squamous epithelia in man are found in the
(1) epidermis and buccal cavity.
(2) ducts of sweat glands and ducts of salivary gland.
(3) urinary bladder and Bowman's capsule.
(4) alveoli and blood capillaries.
(5) thyroid gland and convoluted tubules of nephrons. (2004)

(7) The white blood cells associated with antibody production are
(1) Neutrophils (2) Basophils (3) Eosinophils
(4) Monocytes (5) Lymphocytes (2004)

(8) In man, simple squamous epithelium is seen in the
(1) thyroid gland (2) kidney (3) oesophagus (4) skin (5) tongue (2005)

(9) Which of the following statements is correct regarding human blood cells?
(1) All leucocytes are granulated.
(2) Monocytes are involved in the production of antibodies.
(3) Usually the highest percentage of leucocytes are the neutrophils.
(4) Erythrocytes store haemoerythrin.
(5) Basophils are important in blood clotting. (2005)

(10) Select the correct statement/statements regarding human cardiac muscle fibres.
(A) They possess intercalated discs.
(B) They are long and cylindrical fibres.
(C) They are able to contract rhythmically on its own.
(D) They never get fatigue.
(E) They are non-striated. (2005)

(11) Which of the following statements is/ are correct regarding human skeletal muscle fibres?
(A)They are long and cylindrical cells. (B) They are striated.
(C) They are uninucleate. (D) They get fatigued.
(E) They are involuntary. (2006)

(12) Which of the following statements is/are correct regarding human smooth muscle fibres?
(A) They lack striations. (B) They are uninucleated. (C) They get fatigued.
(D) They are involuntary. (E) They are not connected to bones. (2007)

(13) In man, simple squamous epithelial cells are found in
(1) inner lining of stomach (2) alveoli (3) epidermis of skin
(4) urinnary bladder (5) convoluted tubules of nephron (2008)

(14) Both cardiac and smooth muscle fibres
(A) are involuntary (B) are myogenic (C) are uni-nucleate
(D) cannot be fatigued (E) are striated (2008)

(15) Which one of following is not a dunction of connective tissue
(1) Support (2) Transport (3) Absorption
(4) Storage (5) Immuno-protection (2009)

(16) Select the correct statement regarding human skeletal muscle fibres.
(1) They are cylindrical, short fibres.
(2) They are multinucleate.
(3) They never get fatigued.
(4) They are interconnected cells.
(5) Their contraction requires autonomic nervous stimulations. (2009)

(17) Smooth muscles
(1) never get fatigued.
(2) may contract faster than skeletal muscles.
(3) are not attached to tendone.
(4) are composed of cylindrical shaped fibres.
(5) are composed of cells having one or two nuclei. (2010)

(18) When a corss section of an organ of man was examined under a microscope, ciliated cells, goblet cells and lacunae containing one or two cells were observed. This organ could be the
(1) liver (2) trachea (3) oviduct (4) intestine (5) kidney (2011)

(19) Which one of the following statements regarding human skeletal muscle contractin is incorrect?
(1) A motor nerve stimulation is essential for its initiation.
(2) Cross bridges are formed between myosin heads and actin binding sites.
(3) Actin filaments shorten.
(4) I – bands shorten.
(5) Calcium ions are essential for the formation of cross bridges. (2013)

(20) Which of the following is not a function of epithelial tissue?
(1) Support (2) Transport (3) Protection
(4) Secretion (5) Absorption (2017-3)

(21) The connective tissue that does not contain fibres under normal conditions is
(1) areolar tissue. (2) adipose tissue. (3) blood
(4) cartilage. (5) bone. (2019-18)

Structure and functions of human digestive system

- Question Nos. 1 and 2 are based on the following table. In this table column I indicates digestive enzyme of man. Column 2 indicates the main sites of their production and column 3 indicates the substrates on which they act.

Column 1 enzyme	Column 2 Main site of production	Column 3 substrate
A lipase	E stomach	P trypsinogen
B rennin	F Small intestine	Q lipids
C enterokinase	G pancreas	R caseinogen

(1) Which of the following indecates the correct order of main sites of production of enzymes A, B and C?
(1) F, G, E (2) E, G, F (3) G, E, F (4) G, F, E (5) F, E, G (2000)

(2) Which of the following indicates the correct order substrates of enzymes A, B, And C?
(1) Q, P, R (2) R, Q, P (3) P, R, Q (4) Q, R, P (5) R, P, Q (2000)

(3) Which of the following statements is incorrect regarding the human liver?
(1) It is the largest organ of the body.
(2) It lies mainly in the upper left region of the abdomen.
(3) It synthesises haemoglobin.
(4) It plays a role in the digestion of food.
(5) It is not involved in temperature regulation. (2001)

(4) The deficiency of which of the following vitamins contributes to bleeding fo gums?
(1) A (2) B_6 (3) C (4) E (5) K (2001)

(5) Which is the incorrect statement regarding human saliva?
(1) It is mixture of secretions of salivary glands and mucus glands of the mouth.
(2) It helps to reduce dental caries.
(3) It contains ptyalin.
(4) It can destroy bacteria.
(5) It is alkaline. (2002)

(6) Which one of the following statements regarding the digestive enzymes of man is incorrect?
(1) Amylase converts starch into maltose.
(2) Lypase converts fats into fatty acids and glycerol.
(3) Pepsin converts proteins into amino acids.
(4) Lactase converts lactose into glucose and galactose.
(5) Chymotrypsin converts proteins into peptides and amino acids. (2003)

(7) Which of the following statements regarding vitamin E is/are correct?
(A) It aids in cellular respiration.
(B) It is found in green vegetables.
(C) It is water soluble.
(D) It is required for the production of co-enzyme A.
(E) Its deficiency causes night blindness. (2003)

(8) Which one of the following statements is correct regarding the human alimentary canal?
(1) Intestinal glands are found in the villi.
(2) Most of the consumed vitamins are absorbed in the small intestine.
(3) Protein digestion begins in the buccal cavity.
(4) Muscle layer are most developed in the small intestine.
(5) Colon is the main site of production of vitamin B_{12} (2004)

(9) Which of the following is the correct statement regarding human digestive enzymes?
(1) Amylase converts starch into maltose and glucose.
(2) Pepsin converts proteins into peptones and amino acids.
(3) Chymotrypsin converts proteins into peptides and amino acids.
(4) Lactase converts lactose into glucose and fructose.
(5) Renin converts caseinogen into polypeptides. (2006)

(10) The vitamin that involved in the synthesis of RNA is
(1) A (2) B_2 (3) B_{12} (4) C (5) E (2006)

(11) Which is the incorrect statement regarding human liver?
(1) It is the largest gland in the body.
(2) It is the main stotage center in the body.
(3) It aids in the digestion of lipids.
(4) It is involved in temperature regulation.
(5) Cholecytokinin stimulates the secretion of bile from the liver. (2006)

(12) Which one of the following statements is incorrect regarding human pancreas?
(1) It functions both as an exocrine and endocrine gland.
(2) Pancreatic juice contains two proteolytic enzymes.
(3) Pancreatic juice helps to neutralize acidity of chyme.
(4) Damage to Langerhan islets may lead to diabetes mellitus.
(5) Secretin regulates functioning of the pancreas. (2007)

(13) Which one of the following statements is incorrect regarding human colon?
(1) It has no circular intestinal folds.
(2) It secretes mucus.
(3) It is the site where faeces is formed.
(4) It is the main site in the body where water resorption occurs.
(5) Its wall has three longitudinal muscle bands. (2007)

(14) Sodium ions and calcium ions are important for the normal health of man. Which of the following requires both of these ions?
(1) Strengthening of bones. (2) Muscle contraction
(3) Haemoglobin synthesis (4) Blood clotting
(5) Activation of enzymes. (2007)

(15) Select the incorrect statement regarding human saliva.
(1) It ia a mixture of salivary and oral mucus-gland secretions.
(2) It contains more than one enzyme.
(3) Some nitrogenous waste products are found in it.
(4) It aids in speech.
(5) It is essential for complete digestion of starch. (2009)

(16) Which one of the following statements regarding the digestive system of man is correct?
(1) Skeletal muscle fibres are present in the muscularis mucosa of some regions of the gut
(2) Gastric cabity is lined by cuboidal epithelium.
(3) Lipase is present in interstinal juice and pancteatic juice.
(4) The most proximal part of the large intestine is the ascending colon.
(5) Pancreatic juice contains the enzymes that act on disaccharides. (2010)

(17) Which one of the following is not a contributory factor for gastritis?
(1) Consumption of alcohol (2) Skipping breakfast
(3) Tuberculosis (4) Mental Stress
(5) Consumption of diets deficient in fibres. (2011)

(18) A child shows the following symptoms of vitamin deficiency.
(a) Fatigue (b) Anaemid (c) Delay in wound healing
Which of the following indicates the vitamins he is deficient of?
(1) Pantothenic acid, folic acid and ascorbic acid
(2) Thiamin, niacin and riboflavin
(3) Riboflavin, vitamin B_{12} and biotin
(4) Vitamin A, vitamin D and vitamin C
(5) Vitamin B_2, vitamin E and vitamin K (2012)

(19) Function of which one of the following enzymes of man cannot be substituted by any other enzyme?
(1) Dipeptidase (2) Trypsin (3) Chymotrypsin
(4) Carboxypeptidase (5) Maltase (2013)

(20) Which one of the following statements regarding vitamins is correct?
(1) No vitamin can be synthesised in humans.
(2) Cereals are a rich source of vitamin A.
(3) Deficiency of vitamin D causes osteomalacia in children.
(4) Vitamin E acts as an antioxidant.
(5) In humans, presence of an intrinsic factor is essential for vitamin B_6 absorption (2014)

(21) Which of the following statements is/are correct regarding human pancreatic juice?
(A) It is an acidic secretion
(B) It emulsifies fats
(C) Its secretion is stimulated by secretin
(D) It contains inactive precursors of proteolytic enzymes
(E) Its secretion is decreased by parasympathetic stimulations (2014)

(22) In a molar tooth of man.
(1) outer covering is composed of dentine and enamel.
(2) the thickest layer is dental cement.
(3) root is longer than the crown.
(4) nerve endings extend to dentine.
(5) the most abundant substance is enamel. (2015)

(23) Human stomach
(A) is located in the upper right region of the abdominal cavity.
(B) contains endocrine and exocrine tissues.
(C) secretes enzymes that are functionally similar to those in saliva.
(D) absorbs a small amount of end-products of lipid digestion.
(E) contains a fluid which has a pH value of around 4 – 5. (2015)

(24) Anaemia is a deficiency syndrome of which of the following vitamins?
(1) A, D, Thiamin (2) B_{12}, B_6, Folic acid
(3) K, B_1, Biotin (4) B_5, B_3, B_1
(5) B_1, B_2, Pantothenic acid (2016-11)

(25) Which of the following is found both in pancreatic juice and intestinal juice?
(1) Amylase (2) Lipase (3) Sucrase
(4) Ribonuclease (5) Trypsinogen (2017-12)

(26) Which of the following statements regarding the digestive system of man is correct?
(1) Longitudinal muscles in the stomach are located between the circular muscles and sub-mucosa.
(2) Secretion of gastric juice is stimulated by parasympathetic nervous system.
(3) Spaces between two microvilli in small intestine are called crypts of Lieberkuhn.
(4) Secretin stimulates the contraction of gall bladder to release bile into duodenum.
(5) Microvilli in small intestine are visible under low power of the optical microscope. (2018-10)

(27) Which of the following statements regarding the absorption of end products of digestion in man is/are correct?
(A) Glucose is absorbed actively in the small intestine.
(B) Triglycerides are synthesized in the epithelial cells of villi of small intestine.
(C) Amino acids are absorbed into blood capillaries of villi of small intestine by diffusion.
(D) Fatty acids and glycerol are absorbed into lymphatic vessels of villi of small intestine.
(E) Maltose is absorbed actively into the epithelial cells of villi of small intestine
(2018-45)

(28) Select the response with the correct example for different types of feeders seen among animals.

Type of feeders	Example
(1) Substrate feeders	Oysters
(2) Fluid feeders	Maggots
(3) Filter feeders	Clams
(4) Substrate feeders	Aphids
(5) Bulk feeders	Humming birds

(2019-19)

(29) Which of the following statements regarding the digestion of nucleic acids in food in man is correct?
(1) It starts in the stomach.
(2) DNA is broken down to nucleotides by nucleotidase.
(3) Nucleosidase is involved in the digestion of nitrogenous bases.
(4) RNA is broken down to nucleotides by pancreatic nuclease.
(5) Intestinal nucleotidase acts on nitrogenous bases. (2019-20)

(30) Mineral elements mainly required for maintaining acid base balance, nerve functioning and formation of bones in man in correct sequence are,
(1) Mg, Fe and P. (2) P, K and Cl. (3) K, Na and I.
(4) Na, K and Cl (5) Cl, Ca and P. (2020-21)

(31) Three substances that the ingested food get encountered within the buccal cavity, stomach and small intestine of man in correct sequence are
(A) lysozymes, pepsin and aminopeptidase
(B) immunoglobulins, HCl and chymotrypsin
(C) salivary amylase, dipeptidase and lipase
(D) mucus, pepsin and bile.
(E) lysozymes, carboxypeptidase and amylase (2020-42)

Organizaton of circulatory systems in animals

(1) Which of the following statements regarding the blood circulatory systems is/are correct?

(A) All vertebrates have a closed blood circulatory system.
(B) Presence of a blood circulatory system is a characteristic feature of all animals.
(C) All animals that have double circulation possess a ventral heart.
(D) The blood circulatory systems of vertebrates have evolved from a basic plan.
(E) In man, the systemic arch is derived from the third aortic arch of the basic plan of aortic archaes of vertebrates. (2000)

(2) A student examining a specimen of an earth-worm desected by the teacher, observed that the

(1) hearts lie in the middle area.
(2) hearts lie ventrally to the digestive tract (alimentary canal)
(3) hearts contain ostia.
(4) hearts occur in pairs.
(5) hearts lie bathed in blood in blood sinuses (haemocoel) (2002)

(3) Which one of the following animals has a closed blood circulatory system with a single circulation?

(1) Cockroach (2) Earthworm (3) Starfish (4) Man (5) Filaria worm (2003)

(4) In man, which one of the following aortic arches become the carotid arteries?

(1) First arch (2) Second arch (3) Third arch
(4) Fourth arch (5) Sixth arch (2004)

(5) Which of the following indicates the blood vessels in correct sequence that a molecule of urea passes from its site of production to site of excretion in man?

(1) Hepatic vein → inferior vena cava → pulmonry vein → pulmonary artery → aorta → renal artery
(2) Capillaries → venules → veins → inferior vena cava → renal vein
(3) Hepatic vein → inferor vena cava → pulmonary artery → pulmonary vein → aorta → renal artery
(4) Cpillaries → venules → veins → pulmonary vein → pulmonary artery → aorta → renal artery
(5) Cpillaries → arterioles → arteries → aorta → dermal arteries → arterioles → capillaries (2010)

(6) Some statements regarding the basic plan of the blood circulatory system of mammals are given below.

A – Dorsal aorta is formed by the 4th pair of aortic acrches of the basic plan.
B – Carotid arteries are formed by the 2nd pair of aortic arches of the basic plan.
C – The 3rd and 5th aortic arches of the basic plan are lost.
D – The 6th pair of aortic arches of the basic plan form pulmonary arteries.

Which of the above statements is/are correct?

(1) A and D only (2) A and B only (3) C only
(4) B and D only (5) D only (2011)

(7) Blood circulatory systems found among animals are as follows

A – Open circulatory system.

B – Closed single circulatory system.

C – Closed double circulatory system.

Which of the following indicates in correct order, the animals which possess the above circulatory systems A , B and C?

(1) Spider , snail and rat (2) Centepede , *Ichthyophis* and bat

(3) Crab, earthworm and turtle (4) Sea urchin , shark and crow

(5) Cockroach , *Nereis* and octopus (2011)

(8) The question is based on the blood circulatory systems of the following animals.

a. Turtle b. Slug c. *Ichthyophis* d. Cockroach

e. Octopus f. Spider g. *Nereis*

Which of the above animals have an open blood circulatory system?

1) a, c and g only 2) a and c only 3) b and e only

4) b, d, e and f only 5) d and f only (2013)

(9) Select the correct statement regarding the blood circulatory systems of animals.

(1) Nematodes and echinoderms do not have blood circulatory systems.

(2) Insects and tapeworms possess open blood circulatory systems.

(3) Annelids and fishes have closed blood circulatory systems.

(4) Chlorocruorin functions as a respiratory pigment in crustaceans.

(5) Atrioventricular (AV) node functions as the pacemaker of the human heart.

(2017-17)

(10) Which of the following statements regarding circulatory systems of animals is correct?

(1)) Open circulatory system with ventral heart is present in mollusks.

(2) Closed circulatory system is found in nematodes.

(3) Haemoerythrin is the blood pigment of crustaceans.

(4) AV node is the pacemaker of human heart.

(5) In human heart, mitral valve is found between the left auricle and left ventricle.

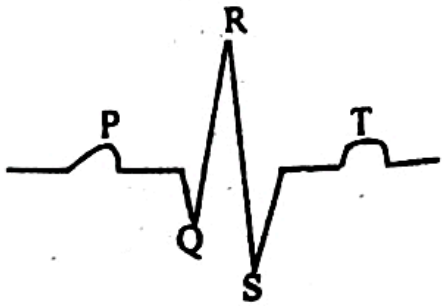
(2018-14)

Structure and functions of human circulatory system.

(1) This diagram is a general representaion of an ECG contraction of atria is represented by

(1) P (2) Q (3) R (4) S (5) T

(2002)



(2) Which one of the following is unlikely to cause hypertension in man?

(1) high level of low density lipoproteins in blood.

(2) Heavy consumption of alcohol

(3) Sleep disturbances

(4) Mental relaxation

(5) Ageing (2003)

(3) Which of he following statements is incorrect regarding human blood pressure?
(1) The blood pressure of a normal, healthy person at rest, is 120/80.
(2) Systolic blood pressure is higher than diastolic blood pressure.
(3) Activity of the parasympathetic nervous system increases blood pressure.
(4) Deposition of fat in the walls of the arteries can cause hypetension.
(5) Blood pressure is dependent on the elasticity of arterial walls. (2006)

(4) Which one of the following does not contribute to increase the rate of heart beat in man?
(1) Adrenalin (2) Thyroxine (3) Sex hormones
(4) Reduction of blood pH (5) Stimularion of parasympathetic nervous system (2010)

(5) Which of the following statements regarding human lymphatic system is incorrect?
(1) This system collects most of the interstitial fluid.
(2) It is connectd with the blood circulatory system.
(3) Peyer's patches are part of the lymphatic system.
(4) It is inbolved with immune responses.
(5) Like veins, lymph vessels lack valves. (2012)

(6) Which one of the following statements regarding SA node of man is correct?
(1) It is located in the wall of right auricle close to inter-auricular septum.
(2) Purkinje fibres originate from it.
(3) It is simulated by the impulses received from the pacemaker of heart.
(4) Stimulus for heart beat originates from it.
(5) It consists of nervous tissue. (2013)

(7) Which one of the following statements regarding human heart is correct?
(1) It is made up of long and cylindrical fibres.
(2) The right atrioventricular valve is bicuspid.
(3) The rate of heart beat is increases by stimulation of the parasympathetic nervous system.
(4) Duration of atrial systole is 0.1 seconds.
(5) Ventricular depolarization is represented by T wave in the electrocardiogram (ECG). (2014)

(8) Which one of the following may not be a reason for hypotension?
(1) Shock (2) Addison's disease (3) Weakening of heart
(4) Heavy haemorrhage (5) Kidney damage (2015)

(9) Which of the following is not a part of the conducting system of human heart?
(1) Chordac tendineae (2) Atrioveatricular (AV) node
(3) Bundle of His (4) Sino-auricular (SA) node
(5) Purkinje fibres (2016-14)

(10) Which of the following may be a consequence of hypotension?
(1) Unconsciousness (2) Kidney damage
(3) Internal haemorrhage (4) Increase in heart beat
(5) Stroke (2019-21)

(11) This question is based on the following
A – Movement of lymph; contraction of cardiac muscle.
B – Exchange of gases in capillaries; active transport.
C – Clotting of blood; formation of thrombin
D – Transport of CO_2 in blood; participation of red blood cells.
In which of the above pairs, does the second contribute to the first?
(1) A and B (2) A and C (3) B and C (4) B and D (5) C and D (2020-22)

(12) Some features of circulatory systems and examples for animals showing each of those features are given below. Select the correct "feature-example" combination / combinations.
(A) No distinction between circulatory fluid and interstitial fluid – Centipede
(B) Presence of pulmonary veins – Spider
(C) Back flow of circulatory fluid into the heart via pores in the heart – Cockroach
(D) Two chambered heart – Ray
(E) Absence of blood capillaries – Carp (2020-43)

Role of blood.

(1) The white blood cells associated with antibody production are
(1) Neutrophils (2) Basophils (3) Eosinophils
(4) Monocytes (5) Lymphocytes (2004)

(2) The number of oxygen molecules that combine wint a single molecule of haemoglobn is
(1) one (2) two (3) three (4) four (5) five (2004)

(3) Which of the following statements is correct regarding human blood cells?
(1) All leucocytes are granulated.
(2) Monocytes are involved in the production of antibodies.
(3) Usually the highest percentage of leucocytes are the neutrophils.
(4) Erythrocytes store haemoerythrin.
(5) Basophils are important in blood clotting. (2005)

(4) If the blood group of a person is B^+, he cannot be transfused with blood from a donor whose blood type is
(1) O^- (2) O^+ (3) B^- (4) B^+ (5) A^- (2007)

(5) Which one of the following leucocytes can secrete heparin?
(1) Neutrophils (2) Basophils (3) Eosinophils
(4) Monocytes (5) Lymphocytes (2012)

(6) Which one of the following statements is correct regarding human blood?
(1) It is slightly acidic
(2) Most of the leukocytes are agranulocytes.
(3) Haemoglobin has a higher affinity to oxygen than carbon monoxide
(4) It helps to maintain homoeostasis.
(5) A person with O blood group has both A and B agglutinogens. (2014)

(7) Which one of the following best represents the number of eosinophils present in 1 mm^3 of blood of a healthy adult person?
(1) 25 – 100 (2) 100 – 175 (3) 60 – 600 (4) 200 – 250 (5) 250 - 350
(2015)

(8) Select the incorrect statement regarding human blood.
(1) It is a specialized connective tissue.
(2) A mature crythrocyte lacks both nucleus and mitochondria.
(3) Neutrophils and monocytes are leucocytes showing phagocytosis.
(4) Most of the carbon dioxide is transported in combination with haemoglobin.
(5) It helps to regulate body temperature. (2016-13)

(9) Which of the following statements regarding human blood cells is correct?
(1) About 90% of all blood cells are erythrocytes.
(2) Basophils are the largest of white blood cells.
(3) Neutrophils are the only type of leucocytes which show phgocytosis.
(4) Eosinophils are involved in elimination of blood parasites.
(5) Lymphocyte count of a normal healthy adult person is 1.5×10^6 to 3.5×10^6 per litre of blood. (2017-16)

(10) Which of the following statements regarding human crythrocytes is/are correct?
(A) They are produced in red bone marrow.
(B) They transport both oxygen and carbon dioxide.
(C) Their diameter is about 10 μm
(D) They are destroyed in the spleen.
(E) The normal range of erythrocyte count in a healthy adult man is 3.8 – 5.8 million/mm^3. (2018-46)

Diversity of respieratory structures.
Structures and functions of human respiratory system

(1) Which one of the following statements regarding respiration of man is incorrect?
(1) The basic rhythm of respiration is controlled by the respiratory centre located in the cerebrum.
(2) A respiratory cycle is composed of three phases.
(3) Respiratory gas exchange takes place in the alveoli and alveolar ducts.
(4) Inspiration is an active process while expiration is a passive process.
(5) The chemoreceptors sensitive to partial pressure of oxygen in the blood are present in the carotid arteries. (2000)

(2) The exchange of respiratory gases through the body surface
(A) Is not an adaptation to terrestrial life.
(B) Is efficient when surface: volume ratio is high
(C) Occur via actve transport.
(D) Is a major feature that contributed to increase in biodiversity on earth.
(E) Is confined to invertebrate. (2001)

(3) Out of the following respiratory organs, which is not in contact with blood.
(1) External gills (2) internal gills (3) trachea
(4) book lungs (5) lungs (2002)

(4) Which one of the following statements is incorrect regarding regulation of respiration in man?
(1) Lowest blood pH increases respiratory rate.
(2) Stimulation of stretch receptors in lungs causes inspiration to stop.
(3) Respiratory centre is located in the pons Varolli and hypothalamus.
(4) Chemoreceptors involved in regulation are located carotid arteries.
(5) Both glossopharyngeal and vagus nerves are involved in the regulation of respiration. (2003)

(5) Which of the following organs of the respiratory system of man is incorrectly paired with its functions?
(1) Nose - humidifies and warms incoming air
(2) Pharynx - produces mucous
(3) Larync - produces sound
(4) Trachea - expels foreign matter
(5) Alveoli - exchange gases (2005)

(6) A non-vascularized respiratory structure is found in
(1) annelids. (2) crustaceans (3) insects
(4) molluses. (5) fishes. (2005)

(7) Which is the incorrect statement regarding respiration of animals?
(1) Gaseous exchange at the respiratory surfaces always occurs by diffusion.
(2) Book lungs are the respiratory structures of spiders.
(3) Haemocyanin is one of the respiratory pigments of annelids.
(4) Tidal volume of a normal healthy adult person at rest, is about 500 m*l*.
(5) Stimulation of stretch receptors in the lungs of man, causes inspiration to stop. (2006)

(8) Which one of the following is an incorrect statement regarding human ventilation?
(1) It is the mechanical process that moves air in, and out of the lungs.
(2) The diaphragm relaxes during inspiration.
(3) Under resting conditions, expiration is a passive process.
(4) Normal ventilation is rhythmic and involuntary.
(5) Respiratory centre in the medulla oblongata inhibits inspiration and stimulates expiration. (2009)

(9) Some respiratory stuctures found among animals and the phyla to which the animals that possess these structures belong are given below. Which one of the following respiratory structure – phylum combinations is incorrect?

Respiratory structure	Phylum
(1) External gills	Annelida
(2) Trachea	Arthropoda
(3) Book lungs	Mullusca
(4) Lungs	Chordata
(5) Body surface	Chordata

(2010)

(10) Some respiratory structures found in the animal kingdom are as follows

A. Lungs B. Book lungs C. Trachea D. Internal gills
E. External gills F. Body covering

Which of the above are used by vertebrates for respiratory gas exchange?

(1) A only (2) A and D only
(3) A , D and E only (4) A , D , E and F only
(5) A , C , D , E and F only (2011)

(11) Which of the following statements regarding cigarette smoke is correct?

(1) Long term exposure to it retards the activity of the germinal layer of the epithelium of the respiratory tract.
(2) It stimulates the goblet cells and ciliated cells in the epithelium of the respiratory tract increasing their activity.
(3) It increases the rate of heart beat and oxygen transportation through blood.
(4) It dilates peripheral blood vessels and increases the blood supply to skin.
(5) It contributes to the release of a large amount of lytic enzymes from lung tissue.
(2012)

(12) When stretch receptors of lungs are stimulated

(A) stimulation of apneustic area in Pons Varolii is inhibited.
(B) stimulation of inspiratory area of medulla oblongata stops.
(C) stimulation of pneuomotaxic area in Pons Varolii is inhibited.
(D) expiratory area of medulla oblongata is stimulated.
(E) sitmulation of chemoreceptors in aorta stops. (2013)

(13) Which of the following respiratory structures is/are found in vertebrates as well as in invertebrates?

(A) Internal gills (B) Book lungs (C) Body surface
(D) External gills (E) Trachea (2015)

(14) Which of the following statements regarding the respiratory system of man is correct?

(1) Contraction of external intercostal muscles results in inspiration.
(2) Tracheal cavity is lined with columnar epithelium.
(3) Right lung consists of two lobes.
(4) Exchange of respiratory gases in the lung requires energy.
(5) Larynx is located at the level of 2nd and 3rd cervical vertebrae. (2016-12)

(15) Which of the following occurs during inspiration?

(1) Relaxation of external intercostal muscles
(2) Relaxation of the diaphragm
(3) Forward movement of the sternum
(4) Increase in the pressure of the pleural cavity
(5) Inflow of inter-cellular fluid into alveoli (2017-13)

(16) Which of the following statements regarding regulation of breathing in man is correct?
(1) It is regulated by the respiratory centres located in medulla oblongata and hypothalamus.
(2) Due to stimulation of inspiratory centre of medulla oblongata, nerve impulses are sent to external intercostal muscles.
(3) Increase in the pH of arterial blood stimulates chemoreceptors in aorta.
(4) Stimulation of stretch receptors in lungs inhibits expiratory centre.
(5) Stimulation of expiratory centre results in the contraction of diaphragm. (2018-11)

(17) Pons Varolii of humans is involved in
(1) regulation of blood pressure.
(2) recognition of sensory information.
(3) regulation of ventilation of lungs.
(4) regulation of the rate of heart beat.
(5) regulation of reflex movements of eye muscles. (2018-15)

(18) Select the correct statement /statements regarding the respiratory pigments
(A) Myoglobin is present in bony fishes.
(B) Haemoglobin is present in mollusks.
(C) Chlorocruorin is present in annelids.
(D) Haemerythrin is present in annelids.
(E) Haemocyanin is present in reptiles (2019-43)

(19) Smoking
(A) stimulates the secretion of mucus by goblet cells in the respiratory tract.
(B) causes tuberculosis.
(C) decreases the oxygen transport in blood.
(D) inhibits the action of cilia in the respiratory tract.
(E) reduces heart beat. (2019-44)

(20) Four respiratory volumes of a resting person are as follows.

Inspiratory reserve volume = 2500 ml	Tidal volume = 450 ml
Expiratory reserve volume = 1450 ml	Residual volume = 1100ml

Inspiratory capacity, functional residual capacity and vital capacity of this person in correct sequence are,
(1) 2950 ml, 2550 ml and 4400 ml
(2) 1900 ml, 1550 ml and 5050 ml
(3) 2950 ml, 1900 ml and 4400 ml
(4) 2550 ml, 3950 ml and 5050 ml
(5) 2950 ml, 2550 ml and 5500 ml (2020-23)

(21) Select the features that can be seen in the tissues of the respiratory system of man.
(A) Single layer of plate like cells.
(B) Single layer of cells of different heights
(C) Single layer of dice shaped cells.
(D) Matrix with chondroitin sulphate
(E) Single layer of brick shaped cells. (2020-41)

Immunity

Defense mechanism of the human body.

(1) Vaccination of healthy children against poliomyelitis is an example of
(1) Artificial passive immunity.
(2) Artificial active immunity.
(3) Natural active immunity.
(4) Natural passive immunity.
(5) Artificially induced natural immunity (2005)

(2) The type of immunity produced in an individual following injection of tetanus toxoid is
(1) naturally acquired passive immunity
(2) naturally acquired hereditary immunity
(3) naturally acquir ed active immunity
(4) artificially acquired passive immunity
(5) artifucially acquired active immunity (2008)

(3) Which enzyme in the body fluids of humans can destroy bacterial cell walls?
(1) Lecithinase (2) Hyaluronidase (3) Lysozyme
(4) Phospholipase (5) Amylase (2009)

(4) Which of the following types of immunity develops in a person recovering from aninfectious disease like measles?
(1) Naturally acquired active immunity.
(2) Naturally acquired passive immunity.
(3) Artificially acquired active immunity.
(4) Artifivially acquired passive immunity.
(5) Genetically acquired passive immunity. (2009)

(5) All people exposed to infectious microorganisms fo not become ill because healthy human body has evolved many mechansms to prevent and overcome the invasion and growth of such microorganisms. Which of the following is not such a mechanism?
(1) Skin scting as a physical barrier to microorganisms
(2) Tear and mucous secretions controlling the invasion of microorganisms
(3) Low pH of gastric juice destroying many microorganisms
(4) Inflammatory responses
(5) Antibiotics produced by normal microbiota in human body destroying invading microorganisms (2012)

(6) Adminisration of antitetanus veccine is and example of
(1) artificially acquired passive immunity.
(2) artificially acquired active immunity.
(3) naturaly acquired passive immunity.
(4) a routine vaccination procedure in public health to prevent tetanus.
(5) naturally acquired activé immunity. (2014)

(7) Which of the following is/are considered as non-specific defence mechanism / mechanisms of human body?
(A) Development of antibodies as a result of a natural microbial infection.
(B) Antibodies transferred from the mother to the foetus through placenta.
(C) Development of inflammatory response to general infections or tissue damage.
(D) Production of interferon in blood as a result of a viral infection.
(E) Development of antibodies as a result of vaccination of attenuated microbial cells. (2015)

(8) Which of the following is a genetically modified vaccine used in active immunization?
(1) Antitetanus vaccine
(2) Hepatitis B vaccine
(3) Antirabies vaccine
(4) Oral Polio vaccine
(5) BCG vaccine (2016-38)

(9) The cells that mediate internal defences in innate immunity in man are
(1) T cells and B cells.
(2) T cells and phagocytes.
(3) B cells and phagocytes.
(4) natural killer cells and T cells.
(5) natural killer cells and phagocytes. (2019-22)

(10) Antibodies
(A) are proteins secreted by plasma cells.
(B) are soluble forms of B lymphocyte antigen receptors.
(C) Contain epitopes that initiate immune responses.
(D) inactivate pathogens in body fluids.
(E) kill body cells infected with pathogens (2020-44)

Excretion

Metabolism and excretory substances.

(1) Which of the following statements regarding excretion is incorrect?
(1) It is an essential process for life.
(2) Production of ammonia as an excretory product does not require energy.
(3) Carbon loss is high when ur ic acid is produced as an excretory product.
(4) First product of nitrogenous excretion in mammals is urea.
(5) Water conservation is highest when uric acid is produced as an excretory product. (2012)

(2) Which one of the following is not an end-product of nitrogenous excretion?
(1) Ammonia
(2) Urea
(3) Creatinine
(4) Uric acid
(5) Bile pigments (2012)

(3) Which one of the following statements regarding the end products of nitrogenous excretion is correct?
(1) Urea is the least toxic nitrogenous waste product in vertebrates.
(2) Excretion of urea requires a large amount of water due to its high solubility.
(3) Due to excretion of urea, loss of carbon from body is high.
(4) Main nitrogenous excretory product of aquatic birds is uric acid.
(5) Creatine is a nitrogenous excretory product of mammals. (2013)

(4) Which one of the following statements regarding excretion is incorrect?
(1) Billirubin is considered as an excretory product.
(2) In all animals, the first nitrogenous excretory product is ammonia.
(3) With reference to carbon loss from the body, production of uric acid is disadvantageous.
(4) In man, main site of urea production is the kidney.
(5) Nephridia open both to inside and outside of the body. (2014)

(5) Select the incorrect statement regarding excretion.
(1) If excretion does not occur blood pH may change.
(2) Defecation is a form of excretion.
(3) Bile pigments are an excretory product in man.
(4) Carbon loss is highest when uric acid is produced as nitrogenous excretory product.
(5) Production of ammonia as an excretory product does not require energy. (2016-20)

(6) Which of the following statements regarding excretion is incorrect?
(1) Excretion is essential to maintain homeostasis.
(2) Excretion is the removal of nitrogenous waste from the body.
(3) In humans, bile pigments are excreted by kidneys and gut.
(4) Nephridia are excretory structures of annelids and molluscs.
(5) The first product of nitrogenous excretion in mammals is ammonia. (2016-22)

(7) Which of the following responses correctly indicates the main nitrogenous excretory product of the given animal group?

	Animal group	Main nitrogenous excretory product
(1)	Mammals	Uric acid
(2)	Birds	Urea
(3)	Frogs	Uric acid
(4)	Sharks	Urea
(5)	Insects	Ammonia

(2019-23)

Diversity of excretory structures.

(1) Green glands are the excretory organs of
(1) Flat worms (2) Annelids (3) Mollusks
(4) Crustaceans (5) Insects (2004)

(2) Which one of the following statements regarding excretory structures of animals is correct?
(1) Salt glands of turtles are located near the cloaca.
(2) Sweat glands of man are located in the deep layers of the epidermis also.
(3) Green glands of crustaceans are found anterior to oesophagus.
(4) Malphigian tubules of insects open in the ventral surface of the body.
(5) Flame cells are found in flat worms and cnidarians (2015)

(3) Which of the following statements regarding excretion is correct?
(1) Simple excretory system with longitudinal canals are found in nematodes.
(2) Nephridia are excretory structures found only in annelids.
(3) In humans, kidney is the main site of urea synthesis.
(4) Water conservation is highest when urea is produced as the nitrogenous excretory product.
(5) Ammonia is the main nitrogenous excretory product of marine bony fishes.
(2018-21)

(4) Which of the following excretory structures of animals opens into digestive tract?
(1) Green glands (2) Salt glands (3) Flame cells
(4) Malpighian tubles (5) Nephridia (2020-24)

Structure and functions of human urinary system.

(1) In a nephron of a normal healthy person.
(1) ultrafiltration takes place in the proximal convoluted tubule.
(2) sodium ions are completely resorbed before the filtrate reaches the distal convoluted tubule.
(3) all glucose in the filtrate is resorbed in the proximal convoluted tubule.
(4) permeability to water of the descending limb of the loop of Henle is increased due to ADH.
(5) resorption of amino acids in the filtrate is completed in the ascending limb of the loop of Henle. (2000)

(2) Which of the following statement/statements is/are true regarding human kidney?
(A) It is involved in the production of red blood cells.
(B) It regulates the pH of blood.
(C) Its tublules secrete glucose.
(D) It is the major osmoregulatory organ of hte body.
(E) It synthesises urea. (2005)

(3) Which of the following statements is/are correct regarding the human nephron?
(A) Several nephrons open into a single collecting duct.
(B) ADH acts on the distal convoluted tubule.
(C) Obligatory resorption of water occurs at proximal and distal convoluted tubules.
(D) Na^+ is actively resorbed from all main parts of the nephron.
(E) Ultradiltration occurs in the Bowman's capsule. (2007)

(4) A damage to which part of the nephron, is it most likely to produce glucose positive urine?
(1) Proximal convoluted tubule (2) Descending limb of loop of Henle
(3) Loop of Henle (4) Ascending limb of loop Henle
(5) Distal convoluted tubule (2008)

(5) Select the incorrect statement regarding the proximal convoluted tubule of the human nephron.
(1) It is connected to the Bowman's capsule.
(2) Its lumen is lined with cuboidal epithelium.
(3) It is the site of obligatory reabsorption of water.
(4) It actively reabsorbs Na^+.
(5) It secretes K^+. (2009)

(6) Which of the following cannot be present in the glomerular filtrate of a normal healthy adult person?
(A) Albumin (B) Platelets (C) Glucose
(D) Amino acids (E) Vitamins (2010)

(7) Some excretory structures found in the animal kingdom and examples for the animals having thos structures are given below. Which of these excretory structure – example combinations is incorrect?

(1) Salt glands	–	Tilapia
(2) Green glands	–	prawn
(3) Nephridia	–	leech
(4) Flame cells	–	*Bipalium*
(5) Malphigian tubules	–	Honey bee

(2011)

(8) Which of the following statements regarding human kidney is/are incorrect?
(A) Clomeruli of cortica lnephrons have fewer number of capillaries than those of juxta – medullary nephrons.
(B) Water is never reabsorbed actively in the kidney.
(C) Amino acids are actively reabsorbed in the kidney.
(D) Excess of vitamin D is secreted in the kidney.
(E) Thoracic vertebrae are also located at the same level of the kidneys. (2011)

(9) Which of the following statements regarding human nephron is/are incorrect?
(A) Water reabsorption can occur at proximal convoluted tubule, ascending limb of loop of Henle and distal convoluted tubule.
(B) Urea is actively reabsorbed in the proximal convoluted tubule.
(C) Juxtamedullary nephrons have long loops of Henle.
(D) Na^+ reabsorption always occurs actively.
(E) It helps in maintaining blood volume. (2014)

• Question No. 10 is based on the following ions.
(a) Na^+ (b) Cl^- (c) HCO_3^- (d) K^+ (e) H^+

(10) Which of the above ions are reabsorbed in the distal convoluted tubule of the human nephron?
(1) (a) and (c) only (2) (a), (b) and (c) only (3) (b) and (c) only
(4) (c), (d) and (e) only (5) (a), (b) and (e) only (2015)

(11) Urine output of a healthy adult person depends on which of the following?
(A) ADH level in blood
(B) Functioning of hypothalamus
(C) Functioning of the proximal convoluted tubules of nephrons
(D) Physical activity.
(E) Blood volume (2016-46)

(12) Which of the following influence/influences the blood glucose level of a normal healthy adult person?
(A) H^+ (B) Amino acids (C) Kreatinine
(D) K^+ (E) White blood cells (2017-44)

(13) In the proximal convoluted tubule of human nephron, which of the following is/are actively reabsorbed?
(A) Na^+ (B) K^+ (C) Amino acids (D) Glucose (E) Uria (2018-47)

Co-ordination and Homeostasis

Organization of nervous systems

(1) Ommatidia are present in
(1) cnidarians (2) platyhelminths (3) annelids
(4) arthropods (5) molluscs (2005)

(2) Ommatidia are found in
(1) Flat worms (2) Annelids (3) Arthropods
(4) Molluscs (5) Coelenterates (2007)

(3) Select the incorrect statement regarding nervous systems.
(1) Neurone is the stuctural unit of the nervous system.
(2) Reflex are is the functional unit of the vertebrate nervous system.
(3) In echinoderms, there is a nerve net.
(4) Synapse is an anatomical junction between excitable cells.
(5) Nerve cord in annelids is double, solid and ventral. (2009)

(4) In humans, voluntary muscular movements are coordinated by
(1) thalamus (2) pons Varolii (3) mid-brain
(4) medulla oblongata (5) cerebellum (2019-24)

Structure and functions of human nervous system.

(1) Stimulation of sympathetic nervous system in man
(1) slows down the rate of heart beat.
(2) constricts the pupil of the eye.
(3) inhibits the contraction of the sphincter muscle of the urinary bladder.
(4) inhibits the secretion of intestinal juice.
(5) dilates the arterioles in the skin. (2000)

(2) Stimulation of parasympathetic nervous system of man results in
(A) increased movement in the digestive tract.
(B) relaxing of the spinchter of bladder.
(C) increased sweating.
(D) contraction of pupil.
(E) dilation of bronchioles. (2002)

(3) In man, activation of the sympathetic nerbous system
(A) Increases tate of heart beat. (B) Occurs in stressful conditions.
(C) Constricts pupil. (D) Slows down peristalsis.
(D) Stimulates tear production. (2004)

(4) Which one of the following is not an action due to stimulation of parasympathetic nervous system?
(1) Constriction of pupil (2) Constriction of bronchioles
(3) Stimulation of salivary secretion (4) Stimulation of sweating
(5) Increasing peristalsis of gut (2008)

(5) Which of the following statements regarding the autonomic nervous system of man is incorrect?
(1) It plays and important role in homoeostasis.
(2) Its sympathetic activity predominates in emergency and stress situations.
(3) In the parasympathetic system, preganglionic fibres are short.
(4) Sympathetic timulation causes bronchodilation.
(5) Parasympathetic stimulation increases peristalsis and secretions of small intestine.
(2012)

(6) Which of the following statements regarding nervous systems is correct?
(1) All multicellular animals possess a nervous system.
(2) Neurone is the functional unit of the human nervous system.
(3) Parasympathatic nervous system prepares a person for an emergency.
(4) Resting potential of a human motor neurone is about – 40 mV.
(5) Larger the diameter of an axon, would be the speed of conduction of an impulses.
(2013)

(7) Which one of the following occurs due to stimulation of parasympathetic nervous system?
(1) Increase in urine output (2) Reduction in sweating
(3) Relaxation of hair erector muscles (4) Dilation of skin arterioles
(5) Contraction of anal sphincter (2015)

(8) In humans, parasympathetic stimulations
(1) dilate the pupil of eye.
(2) decrease the rate of heart beat.
(3) increase secretion of sweat.
(4) dilate bronchi.
(5) increase conversion of glycogen to glucose in the liver. (2018-17)

(9) Stimulation of the sympathetic division of the autonomic nervous system in man
(1) decreases the rate of heart beat. (2) promotes digestion.
(3) constricts pupil of the eye. (4) stimulates urination.
(5) promotes ejaculation of semen. (2020-27)

Structure and functions of human brain.

- Questions No. 1 and 2 are based on the following table. Three parts of the human brain are listed in the first column. The second column gives their major functions and the third column gives their origin.

Column 1	Parts of the brain
A	– Hypothalamus
B	– Cerebellum
C	– Corpora quadrigemina
Column 2	**Major function**
L	– Control of eye movements
M	– Coordination of voluntary nuscle action
N	– Homoeostasis
Column 3	**Origin**
P	– Hindbrain
Q	– Midbrain
R	– Forebrain

(1) The correct sequence showing the major functions of A, B and C is
(1) M, L, N (2) N, L, M (3) N, M, L
(4) L, N, M (5) M, N, L (2001)

(2) The correct sequence showing the origin of A, B and C is
(1) Q, P, R (2) P, R, Q (3) R, P, Q
(4) R, Q, P (5) P, Q, R (2001)

(3) Which one of the following statements is incorrect regarding the hypothalamus of man?
(1) It is developed from the embryonic mid brain.
(2) It is essential for thermoregulation.
(3) All hormones secreted by it act on the pituitary.
(4) It synthesizes oxytocin.
(5) It is involved in the regulation of the rate of heart beat. (2004)

(4) Which of the following structures in the human brain is/are important in the control of movements involving skeletal muscles?
(A) Basal ganglia (B) Cerebellum (C) Medulla oblongata
(D) Corpus callosum (E) Red nuclei (2009)

(5) A person developed a tumour between pons varoli and thalamus affecting the functions carried out by that region of the brain which of the following could be most affected by this tumour?
(1) Movement of eyes (2) Maintenance of balance (3) Memory
(4) Control of respiration (5) Speech (2011)

(6) Which one of the following statements regarding human hypothalamus is incorrect?
(1) It is derved from the embryonic forepbrain.
(2) It releases trophic hormones.
(3) It contains the thermoregulatory centre.
(4) It regulates hunger and thirst.
(5) It acts as a relay centre in brain. (2012)

(7) Which of the following statements regarding human brain is incorrect?
(1) Thalamus is derived from embryonic forebrain.
(2) The surface of cerebellum is formed of white matter.
(3) It has four large cavities.
(4) Endocrine functions of the pituitary is regulated by the hypothalamus
(5) Large representation is devoted to hand in the sensory area of the cerebrum. (2014)

(8) Pons varolii of the human brain
(1) forms a bridge between the fore-brain and hind-brain.
(2) chroid lines about ¾ of the inner surface of sclera.
(3) ciliary body is the anterior continuation of retina.
(4) vitreous humour is found between the lens and cornea.
(5) the number of rods is about ten times as that of cones. (2015)

(9) Select the incorrect statement regarding human brain.
(1) Functional area concerned with speech is located in the frontal lobe.
(2) Corpus callosum connects the two hemispheres oft he cerebrum.
(3) Cerebellum plays an important role in maintaining balance and equilibrium.
(4) Thalamus is involved in the integration of sensory information.
(5) Reflex centre for coughing is located in the pons varolii. (2016-18)

(10) Select the correct statement regarding the human brain is correct?
(1) Corpora quadrigemina is derived from embryonic hind-brain.
(2) Pons Varolii regulates breathing rate.
(3) Forebrain controls reflex movements of eye muscles.
(4) Cerebellum controls sneezing and coughing.
(5) Cerebrum is involved in sensory perception of pain. (2017-18)

(11) Select the response that correctly indicates the part of the human brain and its function.
(1) Thalamus - regulation of appetite
(2) Hypothalamus - maintenance of posture
(3) Mid brain - coordination of visual reflexces
(4) Pons Varolii - regulation of sleep and awake cycles
(5) Cerebellum - initiation of fight or flight response (2020-25)

Generation and transmition of nerve impulses.

(1) Which one of the following is not essential for the production of action potential in a neurone?
(1) Neurilemma (2) Threshold stimulus (3) Extracellular fluid
(4) Myelin sheath (5) Na^+ and K^+ (2003)

(2) Which one of the following statements in incorrect regarding action potential?
(1) It does not require ATP.
(2) Its duration is extremely short.
(3) During its occurrence, the polarity of the axon membrane reverses.
(4) It can spread along an axon.
(5) Na^+ and Ca^{++} are essential for its production. (2004)

(3) Select the incorrect statements regarding vertebrate motor neurone.
(1) It is a highly irritable cell.
(2) Its cell body contain Nissl granules.
(3) Its plasma membrane is polarized.
(4) Its dendrites conduct impulses away from the cell body.
(5) It synthesizes and releases acetyloholine. (2005)

(4) Which of the following is the correct statement regarding neurones?
(1) Axolemma is depolarized when it is mot conducting and impulse.
(2) Maintenance of the resting potential requires expenditure of energy.
(3) Axolemma is more permeable to sodium ions than potassium ions at resting conditions.
(4) Myelin is essential for conduction of nerve impulses.
(5) There is a large inward movement of potassium ions across the axolemma into the neurons during depolarization. (2006)

(5) Which of the following statements is incorrect regarding a nerve impulse?
(1) It is a propagated action potential.
(2) Myelin sheath helps to increase its speed.
(3) Na^+ and K^+ are essential for its production.
(4) It is formed in the plasma membrane of the neurone.
(5) It travels both forwards and backwards. (2007)

(6) Which one of the following statements is incorrect, regarding the resting membrane potential of human motor neurone?
(1) It occurs in the plasma membrane of the neurone.
(2) It results from, unequal distribution of ions across the plasma membrane of the neurone.
(3) It is about -70 mV.
(4) Its maintenance requires ATP.
(5) It can move along the axon. (2008)

(7) Which of the following statements is/are correct regarding resting potential of a neurone of man?

(A) It is about -70mV.
(B) Carrier proteins contribute to maintain it.
(C) Energy is not required to maintain it.
(D) During resting potential, the plasma membrane of a neurone is more permeable to Na^+ than to K^+.
(E) During resting potential, Na^+ concentration inside the neurone is higher than the outside of the neurone. (2010)

(8) Which of the following statements regarding a motor neurone of man at the stage of not transmitting an impulse is correct?

(1) Inner surface of the plasma membrance of neurone is negatiely charged compared to outside due to entering of higher number of anions than that goes out.
(2) Major anion inside the meurone is Cl^-
(3) Concentration of Na^+ and organic anions is higher inside the neurone than outside the neurone.
(4) Na^+ K^+ pump is maintained by acive transport that involves carrier proteins.
(5) Permeability of plasma membrance for Na^+ is higher than for K^+ (2011)

(9) Which of the following statements regarding reflex arcs of man is/are incorrect?

(A) They help to control many involuntary actions.
(B) Responses resulting due to their involvement are automatic.
(C) They generally consist of two neurones.
(D) They connect the receptor and effector organs through the automonic nervous systems.
(E) They are the functional units of the nervous system. (2011)

(10) Which one of the following statements regarding the action potential of a neurone is incorrect?

(1) It is a transient reversal of polarity of axolemma.
(2) A threshold stimulus is required to produce it.
(3) Its depolarization phase is due to influx of Na^+
(4) Na^+ K^+ pump is not essential for its completion.
(5) It is self propagating. (2013)

(11) Which of the following attributes of action potential prevents the reverse conduction of a nerve impulse?

(1) Hyperpolarization phase (2) Repolarization phase
(3) Refractory period (4) Depolarization phase
(5) Duration (2014)

(12) Synapses were first developed in

(1) cnidarians (2) flat worms (3) annelids
(4) echinoderms (5) arthropods (2015)

(13) Select the incorrect statement regarding an action potential of a human molor neurone.
(1) Immediately after one action potential, a second action potential cannot be produced.
(2) It is generated only at nodes of Ranvier.
(3) Its depolarization phase is immediately followed by the hyperpolarization phase.
(4) Its duration is about two milliseconds.
(5) A threshold stimulus is essential to produce it. (2016-19)

(14) Select the correct statement/statements regarding sodium-potassium pump of a neurone.
(A) Pumping of Na^+ and K^+ are interdependent.
(B) It is located in the neurilemma
(C) Deficiency of ATP can interrupt its functioning.
(D) It is essential for the maintenance of the resting membrane potential.
(E) It pumps Na^+ from the extracellular fluid into the neurone. (2016-45)

(15) Select the incorrect statement regarding physiology of neurones.
(1) Sodium – potassium pump is essential to maintain resting membrane potential.
(2) Resting membrane potential is about – 70 mV.
(3) Duration of an action potential is about 2 ms.
(4) In a myclinated axon, action potential is formed only at the nodes of Ranvier.
(5) K^+ influx occurs during repolarization phase of the action potential. (2017-19)

(16) Select the correct statement regarding action potential of a human neurone.
(1). K^+ influx into the neurone occurs during repolarization phase of action potential.
(2) Duration of an action potential is about 5 milliseconds.
(3) Na^+ efflux from the neurone occurs during depolarization phase of action potential.
(4) It is a transient reversal of polarity of the nerve cell membrane.
(5) Immediately after one action potential, another action potential can be produced. (2018-18)

(17) Which of the following contributes/contribute for the maintenance of resting potential of a neuron?
(A) Unequal distribution of Na^+, K^+, Cl^- and large anions inside and outside the neuron
(B) Active transport of Na^+ out of the neuron and K^+ in to the neuron in 3 : 2 ratio
(C) Opening of more K^+ channels than Na^+ channels in the neuron membrane
(D) Transport of more Na^+ in to the intracellular fluid of the neuron than K^+
(E) Transport of Cl^- from the neuron to the extracellular fluid (2019-45)

Different sensory organs.

(1) Which one of the following groups of animals have eyes very much similar to those of vertebrates?
(1) Annelids (2) Arthropods (3) Mulluses
(4) Plathyhelminths (5) Echinoderms (2001)

(2) The first group of animals to develop photoreceptors during evolution is?
(1) Coelenterates (2) Flat worms (3) Annelids
(4) Arthropods 5) Molluscs (2003)

(3) Which of the following is/are sensitive to low temperatures?
(A) Pacinian corpuscles (B) Organs of Tuffini (C) Krause's bulbs
(D) Free nerve endings (E) Meissner's corpuscles (2005)

(4) Which of the following tastes cannot be detected by human tongue?
(1) bitter (2) sweet (3) sour (4) rancid (5) salty (2007)

(5) In man, receptors sensitive to pressure are not found in
(1) joints (2) muscles (3) mesenteries (4) epidermis (5) dermis (2008)

(6) Which one of the following statements regarding receptous is incorrect?
(1) They function as transducers.
(2) In some receptors, continuous stimulation diminishes the response.
(3) They are always connected to the nervous systerm.
(4) Free nerve endings in human skin function as specific thermoreceptors.
(5) Merkel's discs are mechanoreceptors. (2012)

(7) Which of the following statements regarding human receptors is incorrect?
(1) They transform one form of energy to nerve impulses.
(2) Activity of some receptors diminishes with continuous stimulation
(3) Pacinian corpuscles are mechanoreceptors.
(4) Organ of Corti contains vibration receptors.
(5) Krause's bulbs are sensitive to high temperatures. (2014)

Structure and functions of human eye and ear.

(1) In the human ear,
(1) The stapes is in contact with the round window.
(2) Semicircular canals are important for the maintenace of body posture.
(3) The cells sensitive to sound waves are located in the vestibule.
(4) The middle ear is filled with perilymph.
(5) The organ of Corti is important in the detection of the movement of the head. (2000)

- Questions 2 and 3 are based on the table given velow. In the first column of the table, three parts of the inner ear of man are given. The major function of these parts are given in the second column and the location of these parts in the inner ear are given in the third column.

Parts of the inner ear	Major function	Location in the inner ear
A – Utricle	P – Involved in hearing	X – Semicirular canals
B – Ampullae	Q – Involved in the detection of the movement of head.	Y – Vestibule
C – Organ of Corti	R – Involved in the maintenance of position of head with respect to gravity	Z – Cochlea

(2) The correct sequence of the major functions of the parts A, B and C is
(1) P, Q, R (2) Q, R, P (3) R, P, Q
(4) R. Q. P (5) P, R, Q (2003)

(3) The correct sequence of the locations of the parts A, B and C in the inner ear is
(1) X, Y, Z (2) X, Z, Y (3) Y, Z, X
(4) Z, X, Y (5) Y, X, Z (2003)

(4) The structure of human ear concerned with static equilibrium is
(1) macula (2) cupula (3) organ of Corti (4) oval window (5) malleus (2007)

(5) Select the correct statement regarding the human eye.
(1) The wall of the eyeball consists of two layers of tissue.
(2) Fovea is the cone free area of the retina.
(3) Rods are very light-sensitive.
(4) Vitamin D is connected with night blindness.
(5) Elongation of the eye ball could cause farsightedness. (2008)

(6) Which of the following best indicates the site of organ of Corti?
(1) Cochlea (2) Cochlear canal (3) Inner car
(4) Membranous labyrinth (5) Sacculus (2011)

(7) In the human eye
(1) reflex movements are controlled by mid-brain.
(2) choroid lines about ¾ of the inner surface of sclera.
(3) ciliary body is the anterior continuation of retina.
(4) vitreous humour is found between the lens and cornea.
(5) the number of rods is about ten times as that of cones. (2015)

(8) Select the correct statement regarding human ear.
(1) Its normal hearing range is 40-20000 Hz.
(2) Incus is connected to the oval window.
(3) Pinna is composed of hyaline cartilage.
(4) Membranous labyrinth is filled with perilymph.
(5) Organ of Corti is associated with auditory function. (2018-16)

(9) Which of the following is the correct pathway of light and nerve impulses for the vision of humans?

(1) cornea → aqueous humour → lens → vitreous humour → photoreceptors → ganglion cells → bipolar cells → optic nerve → occipital lobe of cerebrum

(2) cornea → aqueous humour → lens → vitreous humour → photoreceptors → ganglion cells → bipolar cells → optic nerve → temporal lobe of cerebrum

(3) cornea → aqueous humour → lens → vitreous humour → photoreceptors → bipolar cells → ganglion cells → optic nerve → occipital lobe of cerebrum.

(4) cornea → vitreous humour → lens → aqueous humour → photoreceptors → bipolar cells → ganglion cells → optic nerve → occipital lobe of cerebrum

(5) cornea → vitreous humour → lens → aqueous humour → photoreceptors → bipolar cells → ganglion cells → optic nerve → temporal lobe of cerebrum

(2019-25)

(10) In the retina of the human eye, the cell layers are arranged from the choroid to vitreous humour respectively as

(1) epithelial layer, bipolar cells, ganglion cells and photoreceptors.
(2) photoreceptors, epithelial layer, ganglion cells and bipolar cells
(3) epithelial layer, bipolar cells, photoreceptors and ganglion cells
(4) ganglion cells, bipolar cells, photoreceptors and epithelial layer
(5) epithelial layer, photoreceptors, bipolar cells and ganglion cells (2020-26)

Structure and functions of the human skin.

(1) Which statement is incorrect, regarding the human skin?

(1) It contains all four basic types of tissues.
(2) It synthesizes vitamin A.
(3) It acts as an excretory organ.
(4) It prevents entry of microorganisms into the body.
(5) It helps in thermoregulation. (2002)

(2) Which of the following structures in the skin of man is/are sensitive to touch and pressure?

(A) Meissner's corpuscles (B) Ruffini corpuscles (C) Free nerve endings
(D) Pacinian corpuscles (E) Krause's end bulbs (2010)

(3) Which of the following statements regarding human skin is/are incorrect?

(A) All four types of basic tissues ca nbe seen in the dermis.
(B) It excretes salts and urea.
(C) Nerve endings do not penetrate into the epithelium containing glands.
(D) Epidermis is a stratified squamous epithelium containing glands.
(E) It synthesizes vitamin D. (2011)

homeostasis and endocrine system

Role of human endocrine system.

(1) Which of the following hormones is/are secreted by the anterior pituitary of man?
(A) FSH (B) Growth hormone (C) ADH
(D) Prolactin (E) Oxytocin (2000)

(2) Which of the following hormone/hormones is/are released in a mammalian prey in seeing a predator?
(A) Cortisol (B) Adrenalin (C) Thyroxine
(D) Adrenocorticotrophic hormone (ACTH) (E) Insulin (2001)

(3) Deficiency of which hormone would cause diabetes insipidus?
(1) insulin (2) aldosterone (3) ADH
(4) noradrenaline (5) glucagon (2002)

(4) Which out of the following hormoned, is not synthesised in the pitutary glands of man?
(1) prolactin (2) growth hormone (3) thyroid stimulating hormone
(4) oxytosin (4) lutenising hormone (2002)

(5) Which of the following statement/statements regarding human hormones is/are correct?
(A) FSH stimulates the growth of ovarian follicles.
(B) Cholecystokinin is secreted by the duodenum.
(C) Parathormone lovers blood calcium level.
(D) Glucagon acts on liver.
(E) Thymosin helps in the development of T-lymphocytes. (2005)

(6) Which hormone is not synthesized in the hypothalamus.
(1) Oxytocin (2) Prolactin inhibiting hormone (3) GnRH
(4) ADH (5) Growth hormone (2006)

(7) Which of the following statements is/are synthesized by intestinal bacteria?
(A) GnRH is a trophic hormone.
(B) Prolactin secretion can be both stimulated and inhibited by the hypothalamus.
(C) Calcitonin increases calcium level in blood.
(D) Aldosterone acts on nephron.
(E) FSH stimulates testosterone production. (2006)

(8) Which one of the following statements is incorrect regarding human luteinzing homone?
(1) It is a trophic hormone.
(2) GnRH regulates its release.
(3) It stimulated ovulation in females.
(4) It regulates release of testosterone in males.
(5) It stimulates the development of uterine wall after menstruation. (2007)

(9) Which of the statements is incorrect regarding human cortisol hormone?
(1) It is secreted by the adrenal cortex.
(2) It reduces blood glucose level.
(3) It stimulates breakdown of proteins.
(4) It helps in withstanding stress.
(5) Both GRH and ACTH can regulate its secretion. (2008)

(10) Select the correct statement regarding human ADH.
(1) It is synthesised in the posterior pituitary.
(2) It is a trophic hormone.
(3) It facilitates water reabsorption in the proximal convoluted tubules and collecting ducts of the kidney.
(4) It can increase blood pressure.
(5) Excessive release of it, causes diabetes insipidus. (2009)

(11) Which of the following hormone/hormones of man acts/act on the kidney?
(A) ADH (B) Aldosterone (C) Adrenaline
(E) Erythropoitin (D) Growht hormone (2010)

(12) Which of the following endocrine glands in man secrete hormones that are responsible for the regulation of functioning of the kidney?
(A) Hypothalamus, adrenal medulla, posterior pituitary
(B) Posterior pituitary, adrenal cortex , thymus
(C) Anterior pituitary, hypothalamus, posterior pituitary
(D) Hypothalamus, parathyroids, adrenal cortex
(E) Hypothalamus, thyroid, pancreas (2011)

(13) Which of the following hormones is least likely to be associated with stress conditions?
(1) ACTH (2) Cortisol (3) Thyroxine
(4) Aldosterone (5) Noradrenaline (2012)

(14) Some hormones associated with reproduction of man, their sites of secretion and their functions are given below.

Hormone	Site of secretion	Function
I – Progesterone	i – Ovary	a – Stimulation of secretion of testosterone
II – LH	ii – Hypothalamus	b – Enlargement of breast
III – GnRH	iii – Corpus luteum	c – Stimulation of menstruation
IV – Oestrogen	iv – Anterior pituitary.	d – Stimulation of secretion of inhibin

Which of the following correctly indicates the hormone, its site of secretion and function?
(1) III, ii, d (2) II, ii, d (3) I, iii, b (4) IV, i, c (5) II, iv, a (2012)

(15) Which of the following hormones of man act / acts on bones?
(A) Growth hormone (B) Erythropoietin (C) Parathormone
(D) Thyroxin (E) Adrenaline (2013)

(16) Which of the following statements regarding human hormones is/are correct?
(A) Erythropoietin acts only in bones.
(B) Prolactin plays an important role in the release of milk.
(C) Both glucagon and cortisol increase blood glucose level.
(D) Both ADH and aldosterone can alter water reabsorption in nephrons.
(E) Parathyroid hormone decreases blood calcium level. (2014)

(17) Some endocrine glands of man and their locations in the body are given below. Which of the following combinations is correct?
(1) Hypothalamus - Anterior region of the mid-brain.
(2) Pituitary - Immediately below the corpus callosum
(3) Thyroid - Mid region of trachea
(4) Thymus - Immediately above the heart
(5) Parathyroid - Anterior surface of thyroid (2015)

(18) Select the incorrect statement regarding human growth hormone.
(1) It is synthesized and released by the anterior pituitary.
(2) Its release can be either increased or reduced by the hypothalamus.
(3) It increases blood glucose level.
(4) It increases synthesis of fats
(5) It regulates the metabolism of liver. (2016-17)

(19) Which of the following statements regarding human calcitonin hormone is incorrect?
(1) It is secreted by follicular cells of the thyroid gland.
(2) It lowers the blood calcium level.
(3) It increases the storage of calcium in bones.
(4) It inhibits the reabsorption of calcium in the nephron.
(5) Its effects are opposite to those of parathyroid hormone. (2017-20)

(20) Select the correct statement regarding human hormones.
(1) Cholecystokinin acts both on pancreas and liver.
(2) Thymus influences the development of B lymphocytes.
(3) Glucagon is secreted by β cells of the islets of Langerhans.
(4) Aldosterone stimulates the reabsorption of Na^+ and K^+ in the nephron.
(5) ADH acts on distal convoluted tubule and collecting duct of kidney tubules. (2017-21)

(21) Select the correct statement regarding human hormones.
(1) Insulin is secreted by α-cells of islets of Langerhans.
(2) Aldosterone is the main glucocorticoid secreted from the adrenal cortex.
(3) Parathyroid hormone reduces blood calcium level.
(4) Thyroxine increases heat production of the body.
(5) Inhibin stimulates the secretion of FSH. (2018-19)

(22) In which of the following responses, the hormone and its main function are correctly matched?
(1) Melatonin - Regulating biological rhythms
(2) Thymosin - Regulating innate immunity
(3) Adrenalin - Decreasing the metabolic rate
(4) Oxytocin - Stimulating milk production
(5) Parathyroid hormone - Lowering blood calcium level (2019-26)

(23) The hormone that has a tropic effect and a non-tropic effect is
(1) TSH. (2) ACTH. (3) prolactin. (4) GH. (5) FSH. (2020-28)

Maintenance of constant internal environment in the human body

(1) Which one of the following statements is correct regarding the regulation of body temperature in man?
(1) Lowering of the environmental temperature stimulates the thermoregulatory centre in the cerebellum.
(2) Rise in body temperature inhibits the secretion of hormones that increase the metabolic rate.
(3) Rise in environmental temperature contracts tha hair erector muscles in the skin.
(4) Decrease in body temperature produces more sweat.
(5) Lowering of environmental temperature dilates the superficial blood vessels in the skin. (2000)

(2) Which of the following statements is correct regarding the human liver?
(1) It is the larges organ of the body.
(2) It lies mainly in the upper left region of the abdomen.
(3) It synthesises haemoglobin.
(4) It plays a role in the digestion of food.
(5) It is not involved in temperature regulation. (2001)

(3) Which of the following statements is/are correct regarding human nephron?
(A) It is involved in the regulation of blood glucose level.
(B) Obligatory resorption of water occurs in the proximal cinvoluted tubule.
(C) Active resorption of Na^+ occurs in the descending limb of loop of Henle.
(D) Resorption of Cl^- occurs in the proximal convoluted tubule.
(E) ADH acts on the ascending limb of loop of Henle. (2003)

(4) Which one of the following is not involved in the regulation of blood glucose level in man?
(1) Intestinal villi (2) Skeletal muscle (3) Cells of islets of Langerhans
(4) Pituitary (5) Nephrons (2004)

(5) Which of the following is not homeostasically regulated in the internal environment of man?
(1) Glucose (2) Temperature (3) Urea (4) Carbon dioxide (5) Water (2005)

(6) Which is the incorrect statement regarding human liver?
(1) It is the largest in the body.
(2) It is the main storage center in the body.
(3) It aids in the digestion of lipids.
(4) It is involved in temperature regulation.
(5) Cholecytokinin stimulates the secretion of bile from the liver. (2006)

(7) Which of the following statements is/are correct regarding homoiothermy in man?
(A) It is regulated by negative feed-back mechanisms.
(B) Hypthalamus is essential for homoiothermy.
(C) Increase in temperature is sensed by Krause's bulbs.
(D) Erection of hair, plays a major role in reducing heat loss.
(E) Homoiothermy is achieved mainly by involuntary mechanisms. (2008)

(8) Which of the following is/are correct regarding regulation of blood glucose level in man?
(A) Fasting blood glucose level is 80 – 120 mg/100 m*l* blood.
(B) Blood glucose level is regulated by negative feedback mechanisms.
(C) Rise in blood glucose level inhibits insulin secretion.
(D) Glucagon stimulates conversion of glycogen to glucose.
(E) Distal convoluted tubule of nephron plays an important role in glucose homoeostasis. (2009)

(9) Which one of the following statements regarding homoeostasis in man is incorrect?
(1) It is the maintenance of a constant internal environment.
(2) It is mediated via negative feedback mechanisms.
(3) Blood urea level is homoeostatically regulated.
(4) Liver plays an important role in homoeostasis.
(5) Homoeostatic mechanisms are mainly involuntary. (2013)

(10) Which of the following influence/influences the blood glucose level of a normal healthy adult person?
(A) Thyroid gland (B) Hypothalamus (C) Parathyroid gland
(D) Glucagon (E) Aldosterone (2017-43)

Reproduction, Growth and development
Different patterns of reproduction.

(1) Which of the following is not correct regarding sexual reproduction of plants and animals?
(1) It may produce offspring identical to parents.
(2) Meiosis is an essential feature.
(3) It produces variations among offspring.
(4) It provides more chances for adaptability.
(5) It involves fusion of reproductive units. (2000)

(2) Natural pathenocarpy is very common in
(1) grapes (2) oranges (3) pineapples
(4) mangosteens (5) guavas (2002)

(3) Which of the following cannot be considered as a method of reproduction?
(1) Binary fission in bacteria (2) Budding in yeast.
(3) Fragmentation in *Spirogyra* (4) Endospore formation in bacreria
(5) Spre formation in *Nephrolepis* (2005)

(4) Which one of the following statements is incorrect?
(1) In many fungi. products of meiosis develpo directly into spores.
(2) Purpose of spore production is always not reproduction.
(3) In some plants, spores are not released from the sporangium.
(4) Plant spores are always covered by thick cell walls.
(5) Many plants produce more than one type of spores. (2006)

(5) Select the incorrect statement.
When compared to asexual reproduction, sexual reproduction is advantageous because
(1) it is faster.
(2) it increases genetic diversity.
(3) it provides a method of eliminating harmful mutations from populations.
(4) it helps the propagation of species into new environmental niches.
(5) it makes the evolution a faster process. (2008)

(6) Which of the following are examples for bisexulity, unisexulity and parthenogenesis respectively?
(1) Mosquito , prawn, *Cycas*
(2) Earthworm , cat , honey bee
(3) *Hibiscus* , Dog , *Cycas*
(4) Sea urchin , bat , honey bee
(5) Centepede , *Cycas* , whale (2011)

(7) Parthenogenesis
(A) produces a complete individual from an unfertilized egg.
(B) produces female honey bees.
(C) can be observed in some lizards.
(D) forms only diploid progeny.
(E) can be seen in all invertebrates. (2019-46)

(8) Which of the following statements regarding asexual reproduction of animals is correct?
(1) It relies entirely on meiotic division.
(2) It may produce offspring with varied genotypes
(3) It enhances the evolutionof species in changing environments.
(4) It allows rapid multiplication of individuals from a single parent.
(5) New organisms can be developed from a sperm without fertilization.
(2020-29)

Structure and functions of male reproductive system.

(1) In man
(A) Spermatogenesis begins during foetal stage.
(B) Seminal vesicles store sperms.
(C) Sperm maturation occurs in the epididymis.
(D) Sertoli cells are found in the walls of seminiferous tubules.
(E) Vas deferens secretes seminal fluid. (2001)

(2) In man, maturation of sperm occurs in,
(1) seminiferous tubules (2) epididymis (3) vas deferens
(4) ejaculatory duct (5) seminal vesicles (2008)

(3) Which is the incorrect statement regarding a transverse section of human testis?
(1) Several seminiferous tubules can be seen there.
(2) In a seminiferous tubule, spermatogonia are seen peripherally.
(3) Spermatids are seen attached to Sertoli cells.
(4) Leydig cells are seen scattered in the germinal epithelium.
(5) Sperms are seen in the centre of the seminiferous tubule. (2009)

(4) Leydig cells
(1) are located in the germinal epithelium of the semeiniferous tubules.
(2) help remove the excess cytoplasm of spermatids during spermatogenesis
(3) provide nourishment to the developing sperms.
(4) secrete inhibin.
(5) secrete testosterone. (2010)

(5) Which of the following statements regarding seminal fluid of man is correct?
(1) Its pH is 6.5 – 7.0
(2) It contains ascorbic acid
(3) About 40% of it is secreted by seminal vesicles.
(4) It contains proteins to provide energy for the movement of sperms.
(5) It contains substances that help in capacitation of sperms. (2011)

(6) Which of the following statements regarding human male reproductive system is correct?
1. Inhibin inhibits the secretion of LH.
2. Vas deferens is the main site of sperm storage.
3. Capacitation of sperms occurs in the epididymis
4. Bulk of the seminal fluid is produced by prostate gland.
5. Seminal vesicle secretion is a rich source of prostaglandins. (2013)

(7) Which of the following statements regarding human spermatogenesis is/are incorrect?
(F) Once started it is a continuous process.
(G) Its duration is about 72 days.
(H) It occurs optimally at body temperature.
(I) Meiosis occurs when spermatogonia are transformed into primary spermatocytes.
(J) It is initiated by FSH. (2014)

(8) In which of the following structures do the sperms of man develop the ability to fertilize an ovum?
(1) Seminal vesicle (2) Vagina (3) Urethra
(4) Vas deferens (5) Epididymis (2015)

(9) The maximum life expectancy of a human sperm after ejaculation is
(1) 12 hours (2) 24 hours (3) 48 hours (4) 72 hours (5) 96 hours
(2015)

(10) Select the incorrect statement regarding reproduction of human males.
(1) Testosterone acts on all parts of the reproductive system.
(2) Seminal vesicular secretion contains glucose and vitamin C.
(3) Capacitation of sperms occurs in the female genital tract.
(4) Duration of spermatogenesis is about 72 days.
(5) Sertoli cell funetions as an endocrine structure. (2016-25)

(11) Which one of the following reproductive structures is unpaired?
(1) Seminal vesicle (2) Cowper's gland (3) Ejaculatory duct
(4) Prostate gland (5) Vas deferens (2016-26)

(12) Select the incorrect statement regarding human epididymis
(1) It is a highly coiled tube.
(2) It is connected to the testis and vas deferens.
(3) It stores sperms before ejaculation.
(4) Within it, sperms acquire the ability to fertilize.
(5) Hyperactivation of sperms occurs within it. (2017-26)

(13) In humans, inhibin is secreted by
(1) prostate glands. (2) epididymis. (3) seminal vesicles.
(4) testes. (5) Cowper's glands. (2018-25)

(14) In spermatogenesis of man, reduction of chromosome number from diploid to haploid occurs during the Production of
(1) sperms from spermatids
(2) spermatids from secondary spermatocytes.
(3) secondary spermatocytes from primary spermatocytes.
(4) spermatogonia from primordial germ cells.
(5) primary spermatocytes from spermatogonia. (2019-27)

(15) Which of the following cells in the testes of man are diploid?
(A) Primary spermatocytes (B) Secondary spermatocytes
(C) Spermatogonia (D) Leydig cells (E) Spermatids
(2020-45)

Structure and functions of female reproductive system.

(1) In the human female,
(1) oogenesis continues until menopause.
(2) the Graafian follicle contains a primary oocyte surrounded by several cell layers.
(3) outermost layer of the overy is the stroma.
(4) the ovum is produced at fertilization.
(5) progesterone stimulates the growth of Graafian follicle. (2000)

(2) Which one of the following statements in incorrect regarding ovulation?
(1) It usually occurs around day 14 of the 28 day menstrual cycle.
(2) It is ejection of the primary oocyte from the Graafian follicle.
(3) Progesterone suppresses ovulation.
(4) LH stimulates ovulation.
(5) It stops during pregnancy period. (2008)

(3) Select the correct response regarding human lactation and milk.
(1) Oxytocin stimulates milk production.
(2) Pro lactin controls release of milk.
(3) Release of milk starts immediately after birth.
(4) Sodium content of milk is low.
(5) Milk is rich in glucose. (2009)

(4) This question is based on the following statements regarding the human ovum.
A – At the time of ovulation, it is in the metaphase of the first meiotic division.
B – It released the first polar body immediately after ovulation.
C – It is multicellular because granular cells of corona radiata are attached to it.
D – It has a dense cytoplasm with minute amount of yolk.
E – It is usually fertilized in the Fallopian tube.

Which of the above statements is/are correct?
(1) A and B only (2) A , B and C only (3) B , C , D and E only
(4) D and E only (5) E only (2011)

(5) Which of the following statements regarding human reproduction is correct?
(1) Acrosome reaction of sperms is necessary for penetration of corona radiata
(2) Cortical reaction of ovum prevents polyspermy.
(3) During ovulation a primary oocyte is ejected from Graafian follicle.
(4) Fertilization should occur within 48 hours after ovulation
(5) Oogenesis starts after puberty. (2013)

(6) Which of the following statements regarding the human ovum is correct?
(1) In a cross section, it is oval in shape.
(2) It contains a minute amout of yolk.
(3) It contains lysosomes.
(4) Its life span is about 12-18 hours.
(5) It becomes haploid as soon as a sperm penetrates it. (2015)

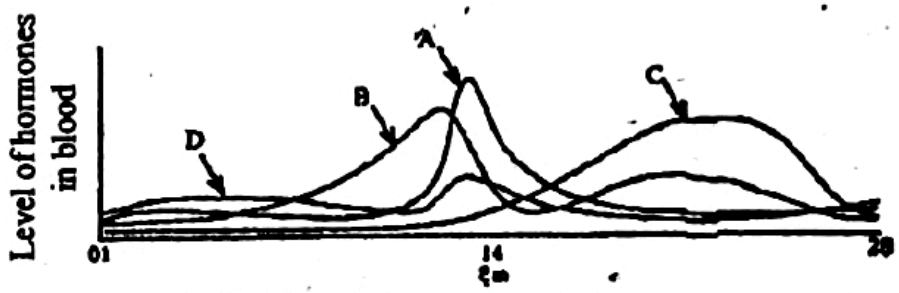
(7) Select the incorrect statement/statements regarding human womb.
(A) It is a hollow, muscular, pear-shaped organ.
(B) Progesterone inhibits its contractibility.
(C) Fertilization normally occurs within it.
(D) Its inner layer is composed of a cuboidal epithelium and mucus secreting tubular glands.
(E) At the end of pregnancy oestrogen stimulates its contractions. (2016-48)

(8) Select the correct statement regarding the menstrual cycle.
(1) During the cycle, peak progesterone level is seen 2-3 days prior to menstruation.
(2) It is initiated by pituitary hormones.
(3) During the cycle, peak FSH level is higher than the peak LH level.
(4) The lengths of proliferative phase and secretory phase are the same.
(5) Steady decline of oestrogen and progesterone levels leads to menstruation.
(2017-24)

(9) Which of the following statements regarding human fallopian tube is incorrect?
(1) It is a duct with a funnel-like opening at the distal end.
(2) Its lumen is lined by a ciliated epithelium.
(3) It propels ovum from the ovary to uterus.
(4) Its secretions nourish both ovum and sperms.
(5) Fertilization normally occurs in its lower 1/3 region. (2017-25)

(10) Regarding human uterus, which of the following statements is/are correct?
(A) Both oestrogen and progesterone stimulate contractions of myometrium.
(B) Uterine secretions nourish the foetus.
(C) Oestrogen stimulates the formation of oxytocin receptors in the myometrium.
(D) Implantation of embryo in the uterus commences by about seventh day following fertilization.
(E) Endometrium is made up of stratified squamous epithelial cells. (2018-49)

(11) This question is based on the following figure which shows the levels of hormones secreted by the anterior pituitary and ovary in blood during the normal reproductive cycle of mature human females.



The hormones indicated as A, B, C and D are respectively
(1) FSH, LH, estradiol and progesterone.
(Z) LH, progesterone, estradiol and FSH.
(3) estradiol, LH, FSH and progesterone.
(4) LH, estradiol, progesterone and FSH.
(5) FSH, LH, progesterone and estradiol (2019-28)

Processes involve in fertilization upto birth

(1) Which of the following statements is true regarding a healthy full-grown male foetus?
(1) All skull bones have been hardened.
(2) Nails have grown up to the finger tips.
(3) Eye-lashes have not been separated.
(4) The body is covered by a thick layer of hair.
(5) Scrotal sacs have not been developed. (2002)

(2) Select the correct statements regarding human ovum.
(1) It contains yolk.
(2) It has 23 pairs of chromosomes.
(3) At ovulation it is at the secondary oocyte stage.
(4) Its production starts at puberty.
(5) It has no perivitelline space. (2005)

(3) Which of the following could be seen in a six month old human male foetus?
(A) Wrinkled skin
(B) Eye lashes
(C) Fused eye lids
(D) Nails extended to the tip of the fingers.
(E) Scrotum with descended testicles. (2011)

(4) Which of the following statements regarding capacitation of human sperms is incorrect?
(6) During capacitation some glycoproteins of speem plasma membrane are altered.
(7) Highly motile sperms release trypsin.
(8) Acrosome reaction occurs only in capacitated sperms.
(9) Capacitated sperms can bind to receptors in zona pellucida.
(10) Capacitation starts in the epididymis. (2012)

(5) Which of the following statements regarding parturition in women is incorrect?
(1) It usually occurs 36 weeks after fertilization.
(2) It results from a series of strong rhythmic contractions of the smooth muscles of myometrium.
(3) The signal for parturition comes from the foetus.
(4) About a week before parturition progesterone triggers the formation of oxytocin receptors in myome.
(5) Uterine stretch receptors play an important role in oxytocin release at parturition. (2012)

(6) Which of the following statements regarding human pregnancy is incorrect?
(1) Its duration is usually about 40 weeks after fertilization.
(2) During preganancy placental progesterone suppresses myometrial contractions.
(3) Foetus has a hairy wrinkled skin by the end of the first trimester of preganancy.
(4) Presence of hCG in urine confirms pregnancy.
(5) Towards the end of pregancy oestrogen triggers the development of oxytocin receptors in the myometrium. (2014)

(7) Which one of the following statements regarding human fertilization is correct?
(1) It suually occurs in the lower 1/3 of the fallopian tube.
(2) It must occur within 24 hours of ovulation.
(3) During this process polyspermy is prevented by the egg membrane.
(4) At fertilization entire sperm enters the egg.
(5) Under no circumstances it occurs outside the female reproductive system. (2014)

(8) Which one of the following is an early sign of pregnancy in some women?
(1) Constipation (2) Decrease in the frequency of urination
(3) Lightening of the colour of nipples (4) Enlargement of abdomen.
(5) Increase in the firmness of breasts (2015)

(9) Select the correct statement/statements regarding human placenta.
(A) It is deciduous alantochorian type of placenta.
(B) It is produces hCG and progesterone at initial stages of pregnancy.
(C) It prevents mixing of foetal and material blood.
(D) It can produce prostaglandians.
(E) It allows passage of water both from mother to foetus and from foetus to mother.
(2016-47)

(10) Which of the following statements regarding the development of human foetus and growth of infant is correct?
(1) By the end of the third month of pregnancy, heart beat of the foetus can be detected.
(2) By the end of the third month of pregnancy, fine hair cover the body of the foetus.
(3) vocalization of an infant usually starts after two months of birth.
(4) Infant can sit on its own by the end of three months after birth.
(5) By the age of 10 months, infant should be fed on the usual diet of other members of the family. (2017-27)

Nutrition and development of the child.

(1) Which of the following statements regarding human milk is correct?
(1) Its synthesis and release is regulated by prolactin.
(2) It is sweet due to sucrose.
(3) Its composition changes from feed to feed.
(4) It is rich in sodium and calcium ions.
(5) It can act as the sole food sourch to a newborn upto about 12 months. (2012)

(2) Which of the following statements regarding human lactation is incorrect?
(1) It is production and release of milk from mammary glands.
(2) Oxytocin is involved in the milk ejection reflex.
(3) Progesterone suppresses milk production.
(4) Baby's suckling is essential for maintenance of milk production.
(5) Human placental lactogen enhances milk production. (2013)

(3) Which of the following is not likely to be found in human milk?
(1) vitamin B_{12} and vitamin D (2) Casein (3) Galactose
(4) Fatty acids (5) Calcium (2018-22)

Awareness on reproductive health

(1) Which one of the following statements on implantation of human embryo is correct?
(1) It is the process of embedding of morula stage in the endometrium.
(2) It usually starts on the third day of fertilization.
(3) It is compleated by the 15th day after fertilization.
(4) It takes about two weeks to complete.
(5) When it is completed, the embryo is known as the foetus. (2010 - 17)

(2) Which one of the following statements is incorrect regarding contraception?
(1) Lactation can provide a contraceptive effect.
(2) Oral contraceptive pill obstructs the release of FSH and LH from the pituitary.
(3) Depo-Provera prevents uterine implanation.
(4) IUDs prevent ovulation.
(5) Vasectomy is a permanent method of male contraception. (2014)

Support and Movement

Structure and functions of the skeletal systems.

(1) Which of the following statements is incorrect regarding animal skeletona?
(1) It is the largest organ of the body.
(2) It lies mainly in the upper left region of the abdomen.
(3) It synthesises haemoglobin.
(4) It plays a role in the digestion of food.
(5) It is not involved in temperature regulation. (2001)

(2) Which of the following statements is correct regarding animal skeletal systems?
(1) Arthropod skeleton is mainly composed of keratin.
(2) An endoskeleton is found only in vertebrates.
(3) In man, occipital condyles articulate with axis vertebra.
(4) Femur is the longest bone in the human body.
(5) Intervertebral discs of man are mainly composed of elastic cartilage. (2007)

(3) This question is based on the following animal groups
A – Crustacea B – Vertebrata C – Mollusca D - Radiolaria
Which of the above groups include/includes animals with exoskeletons as well as animals with endoskeletons?
(1) B only (2) B and C only (3) B , C and D only
(4) A and C only (5) A and D only (2011)

(4) Which of the following statements regarding the human skeletal system is/are incorrect?
(A) Both parietal and frontal bones of the skull are paired.
(B) Cervical curvature of the vertebral column develops around 7-8 months after birth.
(C) It plays a role in homoecostasis.
(D) It produces both red and white blood cells.
(E) There are two longitudinal arches in the foot. (2013)

(5) Which of the following statements regarding the exoskeleton of animals is correct?
(1) Molluscs are the major group of animals that possess an exoskeleton.
(2) Sea urchins are different from other echinoderms as they have an exoskeleton.
(3) Body of some reptiles is supported only by the exoskeleton.
(4) Exoskeleton of arthropods contains carbohydrates, proteins and calcium carbonate.
(5) Body of some free living nematodes are covered by an exoskeleton. (2015)

(6) Which of the following groups contain / contains animals without bony skeleton?
(A) Chordata (B) Aves (C) Nematoda
(D) Arthropoda (E) Mammalia (2017-42)

(7) Which of the following statements regarding animal skeletons is/are correct?
(A) Both the endoskeleton and exoskeleton provide protection.
(B) Radiolarians possess endoskeletons.
(C) All skeletons store calcium.
(D) Hydrostatic skeleton is found in annelids and nematodes.
(E) Molluscs have only exoskeletons. (2017-46)

(8) Which of the following combinations is/are correct regarding the skeletons of animals?

Skeleton	Example
(A) Coelom	Annelids
(B) Pseudocoelom	Cnidarians
(C) Calcium carbonate plates	Echinoderms
(D) Bony plates	Reptiles
(E) Gastrovascular cavity	Nematodes

(2019-47)

Structure and functions of the axial skeleton of man.

(1) Which of the following features of human skeleton is/are important for the upright posture?
(A) Presence of four curves in the vertebral column.
(B) Presence of invertebral discs.
(C) Presence of a broad foot.
(D) Presence of a basin shaped pelvis.
(E) Presence of a large cranium. (2000)

(2) Which one of the following statement regarding the adult human skull is incorrect?
(1) It is made up of 22 bones. (2) It has capacity of around 2 liters.
(3) It protects the middle ear. (4) Foramen magnum is located at its base.
(5) Mandible articulates with the cranium. (2003)

(3) In man, a thoracic vertebra can be distinguished from other vertebrae due to
(1) ts large size.
(2) The presence of vertebratterial canals.
(3) The presence of a bifurcated neural spine.
(4) The absence of an odontoid process.
(5) The presence of articulatory surfaces on the centrum. (2003)

(4) The vertebral column of man
(1) Provide surfaces for articulation of clavicles and ribs, and attachment of movebles.
(2) Consist of 33 vertebrae of which 26 are movable.
(3) Produces red blood corpuscles throughout the life in the red bone marrow contained within it.
(4) Consists of four arches of which three are primary arches.
(5) Contains invertebral discs made up of carilage and gelatinous material to absorb shocks. (2004)

(5) Which of the following statements is incorrect regarding adult human skull?
(1) It is made up of 22 bones. (2) Its capacity is about 155o ml.
(3) It protects the middle ear. (4) It articulates with the axis vertebra.
(5) Its mones are joined together by sutures. (2005)

(6) In man, a pair of foramensin the transverse processed can be seen in
(1) cervical vertebrae (2) thoracic vertebrae
(3) lumber vertebrae (4) sacral vertebrae
(5) vertebrae of coccys. (2006)

(7) Which statement is correct regarding human vertebral column?
(1) It consists of 35 linearly arranged vertebrae.
(2) The sacral curve appears after birth.
(3) The first cervical vertebra is the axis.
(4) Lumber vertebrae are the largest and the strongest.
(5) Sacrum is formed by the fusion of four vertebrae and three intervertebral discs. (2008)

(8) Which statement is correct, regarding lumber vertebrae of man?
(1) There are seven lumber vertebrae.
(2) They have two vertebraterial canals.
(3) They are the largest and strongest vertebrae.
(4) Each vertebra minimises forward and backward bending of the body.
(5) They have very long neural spines. (2009)

(9) In man, a well developed centrum, a long neural spine and long transverse processed could be seen in
(1) lumbar vertebrae only.
(2) thoracic vertebrae only.
(3) lumbar and thoracic vertebrae only.
(4) 6th cervical, lumbar and thoracic vertebrae only
(5) thoracic lumbar and sacral vertebrae only. (2011)

(10) Which of the following statements regarding human pelvis is incorrect?
(1) Pelvis is a basin-shaped structure formed by sacrum, coccyx and innominate bones.
(2) Ilium is the largest bone of pelvis.
(3) Acetabulum is a deep lateral depression in the pelvis.
(4) Acetabulum is a deep lateral depression in the pelvis.
(5) Compared to the male pelvis the female pelvis is more shallow and rounded. (2013)

(11) Which of the following statements regarding the skull of a normal adult man is/are incorrect?
(A) Its cranial capacity is about two litres.
(B) Mastoid process is found in the lower jaw.
(C) Maxillary bone has air sinuses.
(D) Facial region is made up of 12 bones.
(E) Upper jaw has six molars. (2014)

(12) In a typical vertebra of man
(1) two processes that originate from the vertebral body project laterally forming transverse processes.
(2) each transverse process bears an articular surface.
(3) two pairs of articular processes are present in the neural arch.
(4) each transverse process contains a foramen for the vertebral artery.
(5) neural spine is bifid. (2015)

(13) Select the correct statement regarding human vertebrae.
(1) The body of axis vertebra has a superior process.
(2) Atlas vertebra has a rudimentary spinous process.
(3) Sacrum is formed of six vertebrae.
(4) Thoracic vertebra has a bifid spinous process.
(5) Largest vertebral foramen is found in lumbar vertebrae. (2017-23)

(14) Select the correct statement regarding human ribs.
(1) They are short and curved bones.
(2) Superior surface of ribs is deeply grooved.
(3) There are 14 pairs of ribs.
(4) The first eight pairs of ribs articulate directly with the sternum.
(5) All ribs articulate posteriorly with the vertebral column. (2018-23)

(15) In the human skull,
(1) vomer contributes to form the cranium.
(2) ethmoid and sphenoid bones are facial bones.
(3) zygomatic and parietal bones contribute to form the zygomatic arch.
(4) mastoid process of mandible articulates with temporal bone.
(5) maxillary and frontal bones contain sinuses. (2020-30)

(16) In the human vertebral column,
(A) 24 bones are linearly arranged.
(B) cervical curvature develops at about 7-8 months after birth.
(C) thoracic region is formed by 12 vertebrae.
(D) cervical vertebrae contain foramen for vertebral arteries.
(E) lumbar vertebrae contain bifid spinous processes. (2020-46)

Structure and functions of the a appendicular skeleton of man.

(1) Which one of the following statements is correct regarding the upper limb of man?
(1) Distal end of radius is over the ulna during supination.
(2) Immovable joints are present between carpels.
(3) Opposability of the thumb is due to hih movability of its first phalange.
(4) Ulna is longer than the radius.
(5) Elbow joint is formed by the articulation of ulna with humerus. (2010)

(2) Which one of the following contributes least in weight lifting by the human upper limb?
(1) Long and strong humerus (2) Pronation (3) Supination
(4) Precision grip (5) Broad plam (2014)

(3) Select the incorrect statement regarding human scapula.
(1) It is a flat triangular-shaped bone.
(2) Its posterior surface is rough.
(3) Its acromion process articulates with the clavicle.
(4) Its glenoid cavity lies in the medial border.
(5) Coronoid process is a projection arising from its upper border. (2016-23)

(4) Select the incorrect statement regarding lower limb of man.
(1) Femur is a long bone located parallel to the mid line of the body.
(2) Tibia is the second longest bone in the lower limb.
(3) It consists of 30 bones.
(4) Fibula is not a part of the knee joint.
(5) Foot has both longitudinal and transverse arches. (2016-24)

(5) Which of the following statements regarding human upper limb is correct?
(1) Humerus is the longest and heaviest bone in the body.
(2) Radius is longer than ulna.
(3) Head of radius articulates with ulna.
(4) Wrist is made up of seven carpal bones.
(5) Distal end of humerus articulates only with ulna. (2018-24)

(6) Select the correct statement regarding human skeletal system.
(1) Elbow joint formed by humerus, radius and ulna permits only flexion and extension of thefore arm.
(2) Hinge joint formed by femur, fibula and patella permits standing upright for a long time.
(3) Arches of the foot are important in distributing body weight only while standing.
(4) Secondary curvatures in the thoracic and sacral regions of the vertebral column help to
maintain erect posture.
(5) A non-inflammatory degenerative disease called osteoporosis causes pain and restricted movement in the affected joints. (2019-29)

Structure and physiology of differnet types of muscles.

(1) Which of the following statements regarding sarcomere of a skeletal muscle fibre is incorrect?
(1) It is the functional unit of muscle contraction.
(2) It is the area between two adjacent Z-lines.
(3) The I-band contains only thin filaments.
(4) A-band is shortened during muscle contraction.
(5) During muscle contraction H-zone is reduced. (2012)

(2) Which one of the following statements regarding human skeletal muscle contraction is incorrect?
(1) A motor nerve stimulation is essential for its initiation.
(2) Cross bridges are formed between myosin heads and actin binding sites.
(3) Actin filaments shorten.
(4) I – brands shorten.
(5) Calcium ions are essental for the formation of cross bridges. (2013)

(3) Which one of the following statements regarding human smooth muscles is correct?
(1) They all show rhythmic contractions
(2) Their unit of contraction is not the sarcomere
(3) They fatigue quickly.
(4) They are innervated by the somatic nervous system.
(5) They are not elastic. (2014)

(4) Which of the following statements is incorrect regarding smooth muscles?
(1) They show the ability to return to original length after being stretched.
(2) Adrenaline causes contractions in some smooth muscles and relaxation in others.
(3) Some show rhythmic contractions.
(4) They fatigue rapidly.
(5) They are innervated by the autonomic nervous system. (2016-21)

(5) Which of the following is incorrect regarding skeletal muscle?
(1) Normally, acetylcholine is necessary to initiate its contraction.
(2) During its contraction the length of A bands and I bands remains constant.
(3) Series of power strokes occurs during its contraction.
(4) Without ATP and Ca^{2+} it cannot contract.
(5) During its contraction the length between two Z lines shortens. (2016-22)

(6) Which of the following statements regarding cardiac muscles is/are correct?
(A) They possess intercalated discs.
(B) They possess long, cylindrical, branched cells.
(C) They have gap junctions.
(D) They are myogenic.
(E) Each muscle cell consists of one sarcomere. (2017-45)

(7) Which of the following statements regarding skeletal muscle is/are correct?
(A) They have gap junctions.
(B) They fatigue easily.
(C) Each of their fibres contains several sarcomeres.
(D) They are extensible.
(E) Their fibres are short, cylindrical and unbranched. (2018-48)

Study of Locomotory structure

(1) Which one of the following statements regarding the movement of organisms is/are correct?
(A) Pseudopodial movement is found in vertebrates.
(B) Flagellar movement is found in the spores of some fungi.
(C) Transport of excretory fluid in some nematodes involves ciliary movement.
(D) Ciliary movement is found in flat worms.
(E) Blood is circulated within the haemocoel of some crustaceans by ciliary movement. (2015)

Answer

animal tissue.

(1)	2	(2)	5	(3)	5	(4)	4	(5)	4	(6)	4
(7)	5	(8)	2	(9)	3	(10)	2	(11)	1	(12)	5
(13)	2	(14)	5	(15)	3	(16)	2	(17)	3	(18)	2
(19)	3	(20)	1	(21)	3						

Structure and functions of human digestive system

(1)	3	(2)	4	(3)	4	(4)	3	(5)	5	(6)	3
(7)	3	(8)	2	(9)	3	(10)	3	(11)	5	(12)	2
(13)	4	(14)	2	(15)	5	(16)	all	(17)	5	(18)	1
(19)	5	(20)	4	(21)	4	(22)	3	(23)	5	(24)	2
(25)	1	(26)	2	(27)	5	(28)	3	(29)	4	(30)	5
(31)	1										

Organizaton of circulatory systems in animals

(1)	2	(2)	4	(3)	2	(4)	3	(5)	3	(6)	5
(7)	3	(8)	all	(9)	3	(10)	5				

Structure and functions of human circulatory system.

(1)	1	(2)	4	(3)	3	(4)	5	(5)	5	(6)	4
(7)	4	(8)	5	(9)	1	(10)	1	(11)	5	(12)	2

Role of blood.

(1)	5	(2)	4	(3)	3	(4)	5	(5)	2	(6)	4
(7)	all	(8)	4	(9)	4	(10)	1				

Respiration

(1)	1	(2)	3	(3)	3	(4)	3	(5)	2	(6)	3
(7)	3	(8)	2	(9)	3	(10)	4	(11)	5	(12)	3
(13)	2	(14)	1	(15)	3	(16)	2	(17)	3	(18)	2
(19)	2	(20)	1	(21)	1						

Defense mechanism of the human body.

(1)	2	(2)	5	(3)	3	(4)	1	(5)	5	(6)	1
(7)	4	(8)	2	(9)	5	(10)	1				

Metabolism and excretory substances.

(1) 4 (2) 5 (3) 4 (4) 4 (5) 2 (6) 2
(7) 4

Diversity of excretory structures.

(1) 4 (2) 3 (3) 1 (4) 4

Structure and functions of human urinary system.

(1) 3 (2) 1 (3) 5 (4) 1 (5) 5 (6) 3
(7) 1 (8) 5 (9) 3 (10) 2 (11) 5 (12) 2
(13) 2

Co-ordination and Homeostasis

Organization of nervous systems.

(1) 4 (2) 3 (3) 4 (4) 5

Structure and functions of human nervous system.

(1) 4 (2) 1 (3) 1 (4) 4 (5) 3 (6) 5
(7) 1, 4 (8) 2 (9) 5

Structure and functions of human brain.

(1) all (2) 3 (3) 1 (4) 5 (5) 1 (6) 5
(7) 2 (8) 5 (9) 5 (10) 5 (11) 3

Generation and transmition of nerve impulses.

(1) 4 (2) 2/4 (3) all (4) 2 (5) 5 (6) 5
(7) 3 (8) 4 (9) 4 (10) 4 (11) 3 (12) 1
(13) 3 (14) 2 (15) 5 (16) 4 (17) 5

Different sensory organs.

(1) 3 (2) 1 (3) 4 (4) 4 (5) 4 (6) 4
(7) 5

Structure and functions of human eye and ear.

(1) 2 (2) 4 (3) 5 (4) 1 (5) 3 (6) 2
(7) 1 (8) 5 (9) 3 (10) 5

Structure and functions of the human skin.

(1) 2 (2) 2 (3) 5

Role of human endocrine system.

(1)	1	(2)	2	(3)	3	(4)	4	(5)	5	(6)	5
(7)	1	(8)	5	(9)	2	(10)	4	(11)	1	(12)	4
(13)	4	(14)	5	(15)	5	(16)	2	(17)	4	(18)	4
(19)	all	(20)	5	(21)	4	(22)	1	(23)	4		

Maintenance of constant internal environment in the human body

(1)	2	(2)	4	(3)	2	(4)	1/4	(5)	3	(6)	5
(7)	5	(8)	1	(9)	3	(10)	5				

Different patterns of reproduction.

(1)	1	(2)	3	(3)	4	(4)	4	(5)	1	(6)	2
(7)	5	(8)	4								

Structure and functions of male reproductive system.

(1)	4	(2)	2	(3)	4	(4)	5	(5)	2	(6)	5
(7)	4	(8)	2, 5	(9)	3, 4	(10)	2	(11)	4	(12)	5
(13)	4	(14)	3	(15)	2						

Structure and functions of female reproductive system.

(1)	4	(2)	2	(3)	4	(4)	5	(5)	2	(6)	3
(7)	5	(8)	5	(9)	5	(10)	4	(11)	4		

Processes involve in fertilization upto birth

(1)	2	(2)	3	(3)	3	(4)	5	(5)	1, 4	(6)	3
(7)	2, 3	(8)	1, 2	(9)	5	(10)	1				

Nutrition and drcelopment of the child.

(1)	3	(2)	5	(3)	3

Awareness on reproductive health

(1)	3	(2)	4

Structure and functions of the skeletal systems.

(1)	4	(2)	4	(3)	3	(4)	3	(5)	4	(6)	4
(7)	1	(8)	2								

Structure and functions of the axial skeleton of man.

(1)	2	(2)	2	(3)	5	(4)	5	(5)	4	(6)	1
(7)	4	(8)	3	(9)	3	(10)	4	(11)	1	(12)	3
(13)	1	(14)	1	(15)	5	(16)	4				

Structure and physiology of differnet types of muscles.

(1)	4	(2)	4	(3)	4, 5	(4)	1	(5)	3	(6)	all

Structure and physiology of differnet types of muscles.

(1)	4	(2)	3	(3)	2	(4)	4	(5)	2	(6)	2
(7)	5										

Study of Locomotory structure

(1) 1