

QB365
Model Question Paper 3
11th Standard CBSE

Biology

Reg.No. :

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Time : 02:00:00 Hrs

Total Marks : 100

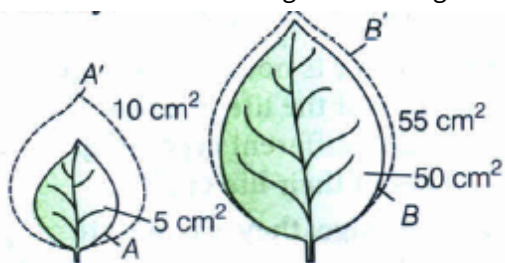
Section-A

- 1) Mention the name the growth regulator, which was first isolated fro endosperm of maize, Give its main biological activity 1
- 2) What will happen to young tadpole of frog, if it is injected with a thyroxine hormone? 1
- 3) Mention the total amount of normal leucocyte count in human? 1
- 4) What are the two substances responsible for causing the gradient for increasing hyperosmolarity of medullary interstitium? 1
- 5) In which region of the plant production of auxin inabudant amount occurs? 1
- 6) Locate the hormone that controls Na⁺ and K⁺ metabolism in the body. 1
- 7) Give an example of cartilaginous joints. 1
- 8) Where is carbonic anhydrase found in human body? 1
- 9) Name the small tubular gap structure between the two neurons 1
- 10) Define the terms erythropoiesis.Also name the hormone that simulates it. 1
- 11) Out of the three types of dentition, which type provides separate socket for tooth in the jaw bone. 1
- 12) What is the excretory antennary glands are found as an excretory organ? 1
- 13) Name the plant in which dimorphic leaves are found. 1
- 14) Give the name of the enzymes involved in the breakdown of nucleotides into sugars and bases? 1
- 15) Name the plant hormone which causes internodal elongation in plants 1
- 16) Mention the name of different types of teeth and their number in an adult human. 1
- 17) Why do cells need a constant supply of oxygen? 1
- 18) Sinoatrial node is called the pacemaker of our heart. Why? 1
- 19) During swallowing of food, the windpipe are closed by a flap-like structure. Identify it. 1
- 20) Due to the release of which plant hormone from over-ripened apple, can affect other apples in the basket? 1

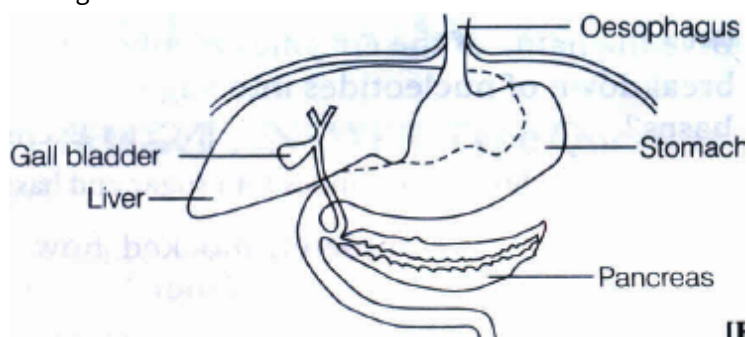
Section-B

- 21) Differentiate between the hyperglycaemia and hypoglycaemia. 2
- 22) Briefly mention the mechanism of action of FSH 2
- 23) In an experiment, the callus produced from internodal segments did not proliferate until coconut water was added. Given person 2
- 24) Explain inhibitory effect of auxins with the help of one example 2

- 25) Stomach is located in upper left portion of the abdominal cavity and has three major parts. Name these three parts. 2
- 26) What is meant by P-Q interval and S-T interval in electrocardiography? 2
- 27) The human endoskeleton consists of two parts. Name them with a number of bones in each. 2
- 28) What does the oxygen haemoglobin dissociation curve indicate? 2
- 29) Explain amplification of a signal in hormone action? What is its role? 2
- 30) Explain mechanisms by which nephron adds some materials to the filtrate? 2
- 31) Which tissue is affected by Myasthenia gravis? What is the underlying cause? 2
- 32) Comment 'hormones are called informational molecules'. 2
- 33) Fill in the spaces 2
- (i) All mammals (excepts a few) have cervical vertebrae.
- (ii) The number of phalanges in each limb of human is
- (iii) and pairs of ribs are called floating ribs.
- 34) State the antagonistic effect of cytokinin and ABA 2
- 35) What will happen if the stretch receptors of the urinary bladder wall are totally removed? Explain. 2
- 36) Write a short note on neural coordination. 2
- 37) Which of them shows higher relative growth rate? Justify. 2



- 38) State the factors affecting the oxygen haemoglobin binding 2
- 39) Explain whether the growth in plants is definite or indefinite. 2
- 40) The diagram shows part of the human alimentary canal. Which two structures produce substances involved in the digestion of fats? 2



Section-C

- 41) What are plant growth regulators? Name any four different chemical nature of them with one example of each. 5
- 42) Mention the phenomenon of growth in plants. Explain the phases of growth in detail. 5
- 43) Discuss the main steps in the digestion of proteins as the food passes through different parts of the alimentary canal. 5

- 44) Define differentiation? Also, give details about how can you distinguish between dedifferentiation and redifferentiation? 5
- 45) Name of the largest gland present in human body. Describe its role in digestion of food. 5
- 46) Differentiate between pectoral and pelvic girdle 5
- 47) Calcium plays a very important role in the formation of bones. Write about the role of endocrine glands and hormones responsible for maintaining calcium homeostasis. 5
- 48) Describes the evolutionary change in the pattern of heart among the vertebrates. 5

Section-A

- 1) Meristematic region of shoot 1
- 2) Ranunculus flabellaris. 1
- 3) Gibberellin is the plant hormone related with internodal elongation. This phenomenon is called bolting 1
- 4) 1
 Zeatin is the growth regulator isolated from endosperm. It controls cell division (cytokinesis) even in non-meristematic tissues
- 5) Presence of ethylene hormone can affect other apples in the basket 1
- 6) In the thecodont type of dentition, separate sockets are provided for tooth in the jaw bone. 1
- 7) 1
 An adult human has 32 permanent teeth, which are of four different types (heterodont dentition), i.e., incisors(I), Canine (C), Premolars (pm) and molars (M) and their numbers are 4, 2, 4, 6, respectively.
- 8) Epiglottis is a flap-like structure, that closes the windpipe during swallowing of food. 1
- 9) Nucleosidases break nucleotides into sugar and bases. 1
- 10) 1
 Cells continuously need oxygen for the metabolic reactions that releases energy from the molecules. This energy is used by cells for various functions of body
- 11) Carbonic anhydrase is an fastest enzyme known so far. It is found in RBC. 1
- 12) 6000 - 8000 per cubic mm is the normal leucocyte count in human. 1
- 13) 1
 Sinoatrial node of heart is responsible for initiating and maintaining the rhythmic activity, therefore it is known as pacemaker of the heart?
- 14) Uric acid 1
- 15) NaCl and urea 1
- 16) The joint between the adjacent vertebrae of vertebral column. 1
- 17) Gap junctions 1

- 18) 1
 Erythropoiesis is the process of formation of RBCs. The juxtaglomerular cells of kidney produce a peptide hormone called erythropoietin which stimulates it.
- 19) Aldosterone is responsible for controlling Na^+ and K^+ metabolism in the body. 1
- 20) 1
 If a young tadpole is injected with thyroxine hormone, it will lead to metamorphosis due to which it develops into a complete young frog.

Section-B

- 21) 2
 Growth in plants is indefinite because they have the capacity for unlimited growth throughout their life. This ability of the plants is due to the presence of meristems at certain locations. This type of growth is exhibited by roots, stem and their branches and is called an open form of growth.
- 22) 2
 Higher concentration of auxins inhibit growth of the plants. In normal course in nature, self produced auxin in plants inhibits the growth and development of lateral buds and as a result lateral bud remains dormant.
- 23) 2
 Callus (i.e., undifferentiated mass of cells) proliferates only when nutrient medium containing auxin was supplemented with coconut milk because it contains kinetin (a cytokinin) which stimulates growth of plants tissues.
- 24) Cytokinin delays senescence, while ABA promotes senescence 2
- 25) Relative growth rate of A = $\frac{(10-5)}{x \times 5} = \frac{5}{5x} \text{ cm}^2$ 2
 Relative growth rate of B = $\frac{(55-50)}{50 \times x} = \frac{5}{50x} \text{ cm}^2$
 Thus, A shows higher relative growth rate.
- 26) The stomach has three major parts as follows 2
 (i) A cardiac portion into Which the esophagus opens.
 (ii) A fundic portion which is a middle region.
 (iii) A pyloric portion which opens into the first part of small intestine.
- 27) 2
 Bile is produced by the liver and pancreatic juice is secreted by pancreas. Liver and pancreas are the two glands of alimentary canal these produce substances (enzymes and bile free) involved in the digestion of fat.
- 28) Factors that affect the oxygen haemoglobin binding are 2
 (i) Partial pressure of oxygen
 (ii) Partial pressure of carbon dioxide
 (iii) Hydrogen ion concentration
 (iv) Temperature

- 29) 2
The lower part of the curve indicates dissociation of oxygen from haemoglobin while, the upper part of the curve indicate acceptance of oxygen by Hb
- 30) 2
In electrocardiography, P-Q interval is the time taken by the impulse to travel through atria, AV node and the rest of the conducting tissues. The normal PR interval lasts for about 0.16 s. The ST interval is the representation of time between the end of the spread of impulse through ventricles and its repolarisation.
- 31) 2
As urine collects in the urinary bladder, the muscular walls of the bladder distend to accommodate it. The stretch receptors on the wall of the bladder send signals to the CNS by stimulating the sensory nerve ending in the bladder. It causes an urge to pass out the urine. So if the stretch receptors are totally removed from the bladder, urine will not be collected in the bladder and urination will keep continuing.
- 32) Reabsorption mechanism by the PCT. 2
- 33) Two parts of human endoskeleton are as follows 2
(i) Axial skeleton, it comprises of 80 bones.
(ii) Appendicular skeleton, it comprises of 1260 bones.
- 34) (i) Seven 2
(ii) Fourteen
(iii) 11th and 12th
(iv) eight
- 35) 2
Myasthenia gravis affected the skeletal muscles of the body.
It is caused due to chronic autoimmune neuromuscular disease characterized by varying degree of weakness in the skeletal muscles.
- 36) 2
The organised network of point-to-point connection for quick coordination provided by neural system is called neural coordination. The mechanism of neural coordination involves transmission of nerve impulse, impulse conduction across a synapse and the physiology of reflex action.
- 37) 2
Although hormones are present in very small amounts, they effectively regulate many physiological processes. This is the result of signal amplification, an increase in signal strength. For example, a single hormone receptor complex can stimulate the production of many cAMP molecules. In turn, each cAMP can activate a protein kinase that phosphorylates many protein molecules. In this way, a single hormone molecule can activate many proteins.
- 38) 2
In males, Fsh and androgens regulate spermatogenesis. In females, Fsh stimulates growth and development of the ovarian follicles. It stimulates the secretion of oestrogen in ovaries.

39)

2

Differentiate between the hyperglycaemia and hypoglycaemia.

hyperglycaemia	hypoglycaemia
It results from hyposecretion of insulin	It result from hypersecretion of insulin
Its symptoms include high blood glucose level, breakdown of muscles tissues, loss of weight and tierdness.	Its symptoms include high blood glucose level, hunger, sweating, irritability, double vision.

40)

2

Hormones are known as informational molecules because their synthesis take place in one part of the body. i.e the endocrine cells and are carried by the blood to another part of the body. i.e target organ or tissues where they stimulate or inhibit the specific physiological process according to the need of the body.

Section-C

41)

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Plant growth regulators are small, simple molecules secreted in minute quantities, that influence various physiological functions in plants. They are of diverse chemical composition.

- (i) Indole compounds [such as-indole-3-Acetic Acid (IAA)]
- (ii) Adenine derivatives[such as kinetin, 6-furfuryl amino purine]
- (iii) Derivatives of carotenoids {such as Absciscic Acid (ABA)}
- (iv) Terpenes[such as gibberellic acids]

42)

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Growth is defined as a permanent or irreversible increase in dry weight, mass or volume of cell, organ or organisms.

Plant growth takes place in three steps or phase-cell division, cell elongation and cell maturation.

- (i) Cell Division Phase
- (ii) Cell Enlargement Phase
- (iii) Cell Maturation Phase

43)

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The cell which are derived from root apical meristem and shoot and other meristems undergo certain changes to attain maturity to perform specific functions. This process which leads to maturation of cells is termed as differentiation. During this, the cells undergo a few major structural changes both in their cell walls and protoplasm to perform some specific functions throughout their life.

- (i) In plants, some living differentiated cells, e.g. parenchyma can regain the capacity to divided mitotically under certain conditions.
- (ii) The product of dedifferentiated cells or tissues which lose the ability to divide is called redifferentiated cells and the term is known as redifferentiation. Secondary xylem and secondary phloem from interfascicular vascular cambium, secondary cortex are the examples of tissues.

44) Liver of the largest gland present in human body which is mainly responsible for the digestion of food

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Role of liver in digestion of food

- (i) Its hepatic cells secrete bile juice which passes through the hepatic duct into the gall bladder.
- (ii) It has its major role in processing of proteins i.e., formation of urea.
- (iii) Bile secreted by it is mainly responsible for digestion of fats for easy absorption in the body.
- (iv) Also responsible for the removal of toxins from blood.

45)

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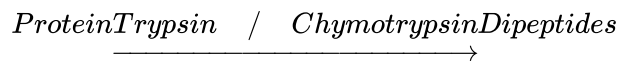
Digestion of proteins in stomach

The proenzyme pepsinogen on exposure to HCl, gets converted into active enzyme pepsin.

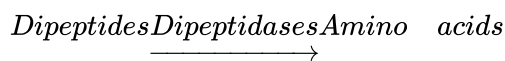
Protein -----> Proteoses + Peptones

Pepsin always acts in acidic medium (pH 1.8). In infants, milk proteins are digested by rennin.

Digestion of protein in small intestine Pancreatic juice contains proenzyme, i.e., trypsinogen that gets activated by an enterokinase, which is secreted by intestinal mucosa, into active trypsin. Trypsin acts in alkaline medium.



The dipeptides are changed into amino acids by the enzyme succus entericus (intestinal juice).



46)

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The heart among the vertebrates shows different patterns of evolution. Different groups of animals have evolved different methods for this transport. All vertebrates possess a muscular chambered heart.

- (i) Fishes have a two-chambered heart with an atrium and a ventricle. The heart pumps out deoxygenated blood by the gills and supplied to the body parts from where deoxygenated blood is returned to the heart.
- (ii) Amphibians and the reptiles have a three-chambered heart with two atria and a single from other body parts. However, they get mixed up in the single ventricle which pumps out mixed blood.
- (iii) Crocodiles, birds and mammals possess a four-chambered heart with two atria and two ventricles. The ventricles pump it out without any mixing up, i.e., two separate circulatory pathways are present in these organisms, hence, these animals have double circulation

47)

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Pectoral and pelvic girdle help in the articulation of upper and lower limbs, respectively. Each girdle is made of two equal halves.

Each half of a pectoral girdle consists of clavicle and scapula. Scapula is a large triangular flat bone. There is glenoid cavity at the joint of scapula, clavicle and acromian process, which articulates with the head of humerus to form the shoulder joint.

Each half of pelvic girdle is formed by three bones, i.e., ilium, ischium and pubis. At the point of their fusion, there is a cavity called acetabulum to which the head of femur articulates.

48)

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The secretion of parathyroid Hormone (PTH) regulates the concentration of calcium ions.

Parathyroid hormone increases the calcium levels in the blood, It acts on bones and stimulates the process of bone resorption. It also stimulates resorption of the digested food.