Roll No. _____ **Code : 112014-044-A**

Please check that this question paper contains **22** questions and **4** printed pages.

CLASS-XI
BIOLOGY

Time Allowed : 3 Hrs. **Maximum Marks : 60**

General Instructions :

(i) All questions are compulsory.

(ii) There are 22 questions in all.

(iii) Questions 1 to 5 carry one mark each; questions 6 to 8 carry two marks each; questions 9 to 18 carry three marks each; question 19 carries 4 marks and questions 20 to 22 carry five marks each.

(iv) There is no overall choice. However, internal choices have been provided in one question of two marks, one question of three marks and all the three questions (Q.No. 20, 21, and 22) of five marks each. You have to attempt only one of the choices in these three questions.

(v) Fifteen minutes time has been allotted to read this question paper. During this time, the student will read the question paper only and will not write any answer on the answer script.

Note : *OTBA questions of ten marks along with the text material will be provided after the Commencement of Examination.*

Q.1. Which organelle is involved in the synthesis of lipid and steroidal hormones? (1)

Q.2. In which phase of the interphase does DNA replication and duplication of the centriole occurs in an animal cell ? (1)

Q.3. Mention the endocrine glands that release oxytocin and insulin hormones ? (1)

Q.4. What are the supporting roots coming out of the lower nodes of the stem of Maize plant known as? (1)

Q.5. Which specific type of epithelium forms the inner lining of the Fallopian tube? (1)

Q.6. (a) Name the cells responsible for the secretion of pepsinogen in the human stomach.

(b) How does the large intestine help in easy passage of undigested and unabsorbed substances through it.

(c) Why do the liver, skin and eyes turn yellow in case of jaundice?

OR

"The end products of fat digestion cannot be absorbed in the blood directly." Explain how the absorption of fat from the intestinal lumen and its ultimate release into the blood stream takes place. (2)

Q.7. With which phytohormone are the following physiological effects of a plant related—

(a) Bolting in cabbage

(b) Apical dominance

(c) Fruit ripening in tomatoes and apples

(d) Closure of stomata. (2)

Q.8. State one important difference between the following :-

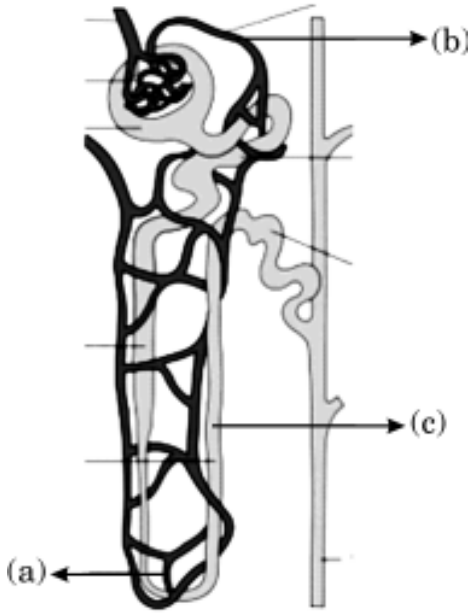
(a) Primary structure and tertiary structure of proteins.

(b) Zygotene and pachytene. (2)

Q.9. (a) What is the term used for the epithelial cells forming the inner lining of the Bowman's capsule of the human kidney ?

(b) Define glomerular filtration rate. What is its value in a healthy person?

(c) Label the parts a, b, c in the given diagram. (3)



Q.10. Describe the apoplast pathway of water absorbed by the root hairs to the deeper root layers. Why the movement of water occurs through endodermis in a symplastic and not an apoplastic pathway? (3)

Q.11. State the chemical nature and role of nitrogenase enzyme in nitrogen fixation by the leguminous plants. How is it prevented from destruction by oxygen in the root nodules ? (3)

Q.12. Justify the following statements giving suitable reasons—

(a) Compulsorily base pairing in DNA.

(b) The chemical structure of adenosine differs from adenylic acid.

(c) Inhibitors closely resembling the substrate in its molecular structure can inhibit the activity of an enzyme. (3)

Q.13. "Rh incompatibility can lead to erythroblastosis foetalis". Explain. (3)

Q.14. Write brief notes on—

(a) Role of troponin.

(b) Floating ribs.

(c) Joint between humerus and pectoral girdle. (3)

Q.15. Give an account of the type of mycelium, asexual spores and the sexual spores of an ascomycetes fungus like *Neurospora.*

OR

Justify giving one reason that Pteridophytes are evolutionary more advanced than the Bryophytes. Enlist the salient features of prothallus. (3)

Q.16. Platyhelminthes includes animals that are bilaterally symmetrical, triploblastic, acoelomate animals with organ level of organization. Mention some other important features of this phylum. (3)

Q.17. "Cockroaches are considered to be serious pests and vectors of several diseases". With its reference name the following :

(a) Nature of exoskeleton which makes it adapted to diverse habitats.

(b) A ring of 6-8 blind tubules present at the junction of foregut and midgut.

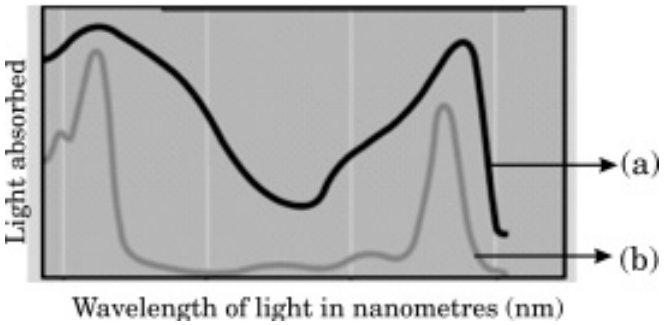
(c) Nitrogenous waste product excreted through the hindgut.

(d) Dark reddish brown capsule bearing fertilized eggs.

(e) About 2000 hexagonal units which form the compound eye.

(f) The type of circulatory system. (3)

Q18. Study the graph given here and answer the following questions—



(a) What are the technical terms used for the type of graphs (a) and (b) above with reference to photosynthesis.

(b) In which region of the spectrum does most of the photosynthesis takes place?

(c) State two roles of accessory pigments in photosynthesis. (3)

Q.19. Rajindra met with a severe accident while rashly driving his motorbike with a great speed. His parents always used to warn him, to which he never cared. He was taken to the hospital in a critical state. The doctors informed his parents that the region of the brain responsible for complex functions such as memory and communication have been impaired.

(a) Which values were lacking in him? Name the area of the cerebrum affected.

(b) Write briefly about corpus callosum and medulla oblongata. (4)

Q20. Explain the structure of cilia/flagella as observed under the electron microscope? Draw a neat diagram and label its parts.

OR

Describe the ultrastructure of the interphase nucleus. Draw its neat diagram and label its parts. (5)

Q21. Plants that are adapted to dry tropical regions follow a special mechanism to overcome the photorespiratory loss". Explain the pathway adopted by these plants.

OR

Describe tricarboxylic acid cycle. Where does it take place in the mitochondria? (5)

Q.22. Write a note on the two types of cells that form the mesophyll of a dicot yledonous leaf. Draw a diagram of the transverse section of a dicot yledonous leaf and label its two parts.

OR

Give the major differences between a monocotyledonous root and a dicotyledonous root. Draw a well labeled diagram of the monocotyledonous root and label its parts. What is the term used for the arrangement of xylem and phloem at different radii in a vascular bundle? (5)