

Roll No. _____

Code : 112015-044-A

Please check that this question paper contains **23** questions and **4** printed pages.

CLASS-XI
BIOLOGY

Time Allowed : 3 Hrs.

Maximum Marks : 60

General Instructions :

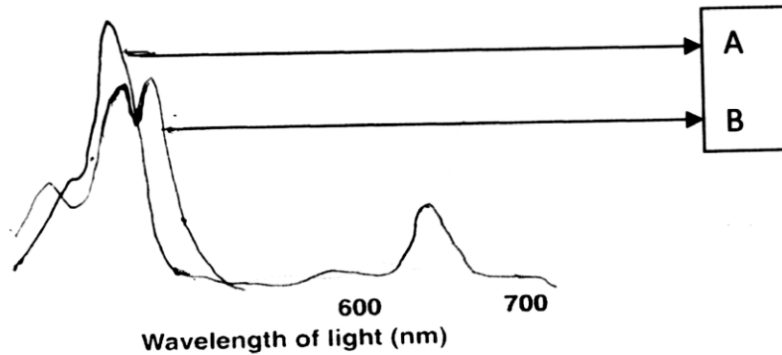
- All questions are compulsory.
- There are 23 questions in all. Question No.1 to 6 carry one mark each; questions 7 to 10 carry two marks each; questions 11 to 19 carry three marks each; question 20 carry four marks & questions 21 to 23 carry five marks each.
- There is no overall choice. However, internal choices have been provided in one question of two marks, one question of three marks and all the questions of five marks. You have to attempt only one of the choices in such questions.
- Fifteen minutes time has been allotted to read the question paper. During this time, the student will read the question paper only and will not write any answer on the answer script.

Section-A

1. Pick out the plant with palmately compound leaves from the list given below and state why is it called so ?
Neem, China rose, Guava, Silk cotton, Mustard. (1)
2. Correct the following statements : (1)
 - (a) Cartilage cells are known as osteocytes.
 - (b) Nerves make up more than half the volume of neural tissue in our body.
3. Define vernalisation. (1)
4. A biology student was surprised to know from her teacher that the potato used for making her favourite chips is a stem and not a root. Give two characteristic to justify it. (1)
5. If fertilisers are added to a well-watered plant quite often, it looks wilted even when the soil is wet. What has happened in terms of water potential ? (1)
6. Which is the most important factor responsible for the binding of oxygen to haemoglobin ? (1)

Section-B

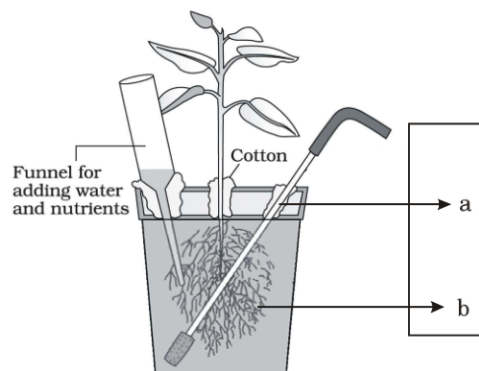
7. "Competitive inhibitors are often used in the control of bacterial pathogens". Explain the mechanism involved. (2)
8. What will happen if : (2)
- (a) Auxin is sprayed on the stem cuttings in a technique used for plant propagation.
 - (b) A decrease in production of ABA in a plant under water-stress conditions.
 - (c) Cytokinins are sprayed on the leaves.
 - (d) Juvenile conifers are sprayed with Gibberellins.
9. Describe the following terms : (2)
- (a) Acrocentric chromosome.
 - (b) Mesosome. 2
10. Label A and B in the given graph.



- (b) Give two differences between the membranes or lamellae of the grana and that of stroma lamellae membranes.

OR

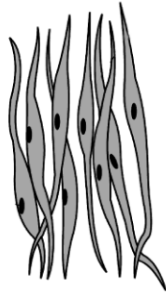
Label a and b in the given diagram.



State any two criteria for essentiality of an element. (2)

Section-C

11. Answer the following statements with respect to the Human Circulatory System :
- (a) How are the sounds “lub” and “dub” produced in the heart ?
 - (b) Which granulocytes constitute the maximum percentage of leucocytes ? Draw its structure ?
 - (c) Name the unique vascular connection between the digestive tract and liver. State its significance. (3)
12. Write a note on Anaphase I and Metaphase II of meiosis for a diploid cell with $2n=4$. Give the diagrams of the given stages. (3)
13. Identify the muscle tissue in the given diagram and write its structural features. Give one example of the body surface lined by it.



OR

Write briefly on the following terms with respect to the male reproductive system of cockroach.

- (a) Abdominal segments containing a pair of testes
 - (b) Spermatophores
 - (c) Paurometabolous. (3)
14. Explain the events taking place in the reaction centre of Photosystem II. (3)
15. Distinguish between the following terms :
- (a) Glycosidic bond and phosphodiester bond along with their chemical structures
 - (b) Primary protein and tertiary protein (3)
16. Mention the one main function and the site of action of the following hormones in humans :
- (a) Prolactin. (b) Secretin. (c) Aldosterone. (3)
17. Give short notes on-
- (a) Enterokinase (b) Residual volume (c) PEM (3)

18. Explain how does the filtration of blood is carried out by the glomerulus in the first step of urine formation ? (3)
19. Describe briefly the two main pathways of water transport. (3)
20. A BLOOD DONATION CAMP was organized by the DAV MANAGEMENT SOCIETY for a social cause. The school staff, alumni and their parents participated enthusiastically in the same. Renu's father also wanted to donate blood. But was worried that her father may experience a sudden withdrawal of hand due to the use of the needle while donating the blood.
- (a) Was Renu's concern valid? State any two values depicted by the Initiative taken up by D.A.V. Management.
- (b) Write a note on the stimulus and the response forming a reflex arc. (4)

Section-D

21. Describe and draw the electron microscopic structure of the cell organelle which contains the photosynthetic machinery?

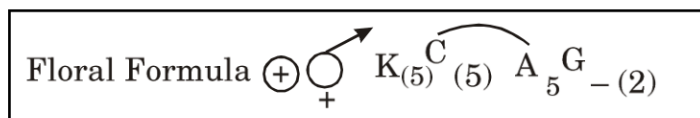
OR

Describe and draw the electron microscopic structure of the cell organelle which forms a reticulum of tiny tubular structures scattered in the cytoplasm. Give its two main functions. (5)

22. Explain the internal tissue organisation of the stele part of a dicotyledonous root.

OR

- (a) Explain any three types of aestivation in corolla of an angiospermic plant.
- (b) The given floral formula belongs to which angiospermic family.



Give the technical term for the fruit of this family. (5)

23. Why is respiratory pathway considered better as amphibolic pathway? Explain the role of oxygen and F_0-F_1 in ETS.

OR

Mention any one enzyme involved in glycolysis in plants.

Explain how the oxidation of pyruvate joins glycolysis with the Krebs cycle.

Which part of the Krebs' cycle involves all the three steps i.e. Substrate level phosphorylation, decarboxylation and reduction of NAD ? (5)

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