STD XI

24 -11-16

SECOND TERM EXAMINATION

BIOLOGY (THEORY)

Marks: 70

(1)

Time: 3hrs

General Instructions:

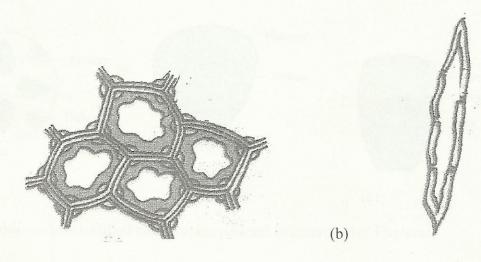
- 1. There are a total of 26 questions and five sections in the question paper. All questions are compulsory.
- 2. Section A contains question number 1 to 5, Very short answer type questions of one mark each.
- 3. Section B contains question number 6 to 10, Short answer type I questions of two marks each.
- 4. Section C contains question number 11 to 22, Short answer type II questions of three marks each.
- 5. Section D contains question number 23, Value based question of four marks.
- 6. Section E contains question number 24 to 26, Long answer type questions of five marks each.
- 7. There is no overall choice in the question paper, however, an internal choice is provided in one question of two marks, one question of three marks and all three questions of five marks. An examinee is to attempt any one questions out of the two given in the question paper with the same question number.

SECTION A

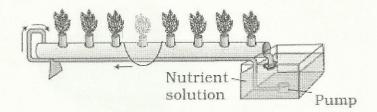
- 1. Mitosis is known as "equational division". Why?
- 2. Name the following minerals: (1)
 - a) required for membrane functioning and pollen germination
 - b) constituent of ring structure of chlorophyll and helps to maintain ribosome structure.
- 3. In which connective tissue the following cells are present? (1)
 - (a) Chondrocytes (b) osteocytes
- 4. Draw the structure of amino acid alanine. (1)
- 5. Give technical term for the following: (1)
 - a) At night and early morning excess water collects at the tip of grass blades
 - b) band of suberised matrix impervious to apoplast pathway.

SECTION B

6. Study the pictures given below, identify and write a comparative note on the cell wall of the tissues (a) and (b)



- 7. Mention any four criteria used by R.H.Whittakar to classify organisms into five kingdoms. (2)
- 8. a) Identify the set up given below. Name the scientist who first demonstrated this technique.
 - b) Write any two significances of the technique. (2)



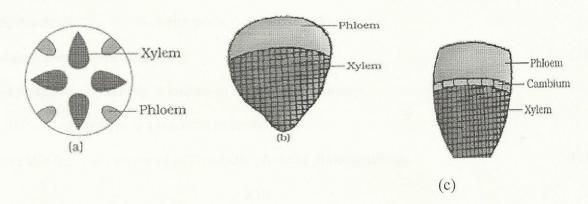
- 9. Both lysosomes and vacuoles are endomembrane structures, yet they differ in terms of their functions. Write comments. (2)
- 10. a) Define vernalisation (2)
 - b) Identify the following plant hormones:
 - i) helps on fruit ripening ii) promotes bolting in cabbage

OR

a) Define plasticity. Give two examples.

SECTION C

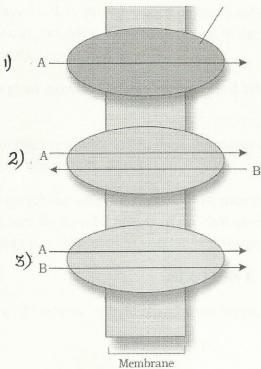
- 11. Draw a neat sketch to show the alimentary canal of cockroach and label the following parts:
 - a) Malpighian tubule b) hepatic caeca c) gizzard (3)
- 12. Identify the different types of vascular bundles given below. Where are they found, Dicot stem/Dicot root / monocot root /monocot stem? (3)



(3)

13. How are chromosomes classified based on the position of centromere? Explain.

14. Describe the structure of Watson and Crick model of DNA. (3)
15. Explain the three life cycle patterns exhibited by plants. (3)
16. Enumerate the events taking place during interphase of cell cycle. (3)
17. The picture given below depicts different types of a process occurring in plants. Explain them. (3)



18. How is ATP synthesized in mitochondrion during cellular respiration? Explain (3)19. a) Write the floral formula of the following families: (3) i) Liliaceae ii) Fabaceae b) Differentiate between apocarpous and syncarpous ovary 20. Give any two characteristic features of the following group of animals: (3)c) Cyclostomata a) Annelida b) Arthropoda (3) 21. State reason for the following: a) Respiratory pathway is known as amphibolic pathway. b) Photorespiration is a wasteful process. (3) 22. Explain the main stages of biosynthetic phase of photosynthesis.

a) State Blackman's Law of Limiting Factors.

b) Mention the factors affecting photosynthesis.

SECTION D

- 23. Weed killer is used by many people in their day to day gardening as it gets rid of the annoying plants called weeds. Weed killer is also known as herbicides and tries to eliminate any unwanted weeds however, it can be dangerous to the environment. It is dangerous to people, as swallowing or inhaling it could cause illness or in extreme cases death. In addition to this, the chemical weed killers you have used in your yard or path can also be washed away to a lake or river. This can then harm the wildlife living in the lake or river and it can also cause death of the animals/plants.
 - a) Name one plant growth regulator used as weed killer. Is it an inhibitor or a promoter of growth?
- b) Apart from used as a weed killer, these hormones are used in hedge making and widely applied in tea plantations. Why?
- c) Ramesh's neighbour who is an agriculturist uses this hormone regularly in his plantation. He explains to him the harmful effects of it. What quality of Ramesh is displayed here?
- d) This hormone is widely used in vegetative propagation. Why?

(4)

SECTION E

24. Explain the 'Z' scheme of light reaction during photosynthesis.

(5)

OR

Explain chemiosmotic hypothesis of ATP synthesis in chloroplast.

25. Elucidate the steps in glucose metabolism occurring in cytoplasm of the cell.

(5)

OR

Explain Hatch and Slack pathway occurring in C4 plants.

26. a) Describe the stages of development of root nodules in a leguminous plant.

(5)

b) Name the biochemical components necessary for nitrogen fixation in root nodule and mention their functions.

OR

Explain mass flow hypothesis or pressure flow hypothesis of translocation of food from source to sink.

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