



INDIAN SCHOOL SOHAR
FINAL EXAM - 2018
BIOLOGY (Code: 044)

STD XI
Date: 1.3.18

Marks: 70
Time: 3Hrs

General Instructions: -

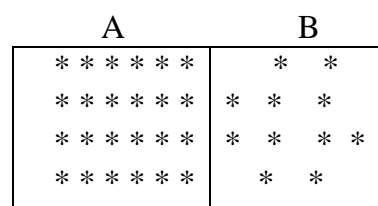
- a. This question paper consists of five sections **A, B, C, D and E**. Section **A** contains 5 questions of 1 mark each, section **B** is of 5 questions of 2 marks each, section **C** is of 12 questions of 3 marks each, Section **D** contains 1 question of 4 marks and section **E** is of 3 questions of 5 marks each.
- b. All questions are compulsory.
- c. There is no overall choice. However, an internal choice is provided in one question of 2 marks, one question of 3 marks and all questions of 5 marks weightage. Attempt only **one** of the choices in such questions.
- d. Questions of section **A** are to be answered in one word or one sentence each, section **B** in approximately 20-30 words each, section **C** in 30-50 words each and section **D** in 30-40 words and section **E** in 80-120 words each.
- e. Wherever necessary, the diagrams drawn should be neat and properly labeled.

SECTION-A

1. How do animals of urochordata differ from those of cephalochordate with reference to notochord? 1
2. Give the technical term for the following: 1
 - a) Specialized cells in the trichome of cyanobacteria where nitrogen fixation occurs.
 - b) Association of fungi with roots of higher plants.
3. A child accidentally stepped on a cockroach but found that it did not bleed, and it died after a week. Give reason. 1
4. State the cell theory. 1
5. How does insulin and glucagon secreted by the pancreas function antagonistically? 1

SECTION-B

6. The given figure shown two chambers A and B separated by a semi-permeable membrane. 2



- a) Solution in which chamber has lower water potential?
- b) In which direction will osmosis occur and why?
- c) What are the two factors on which the rate of osmosis depends on?

OR

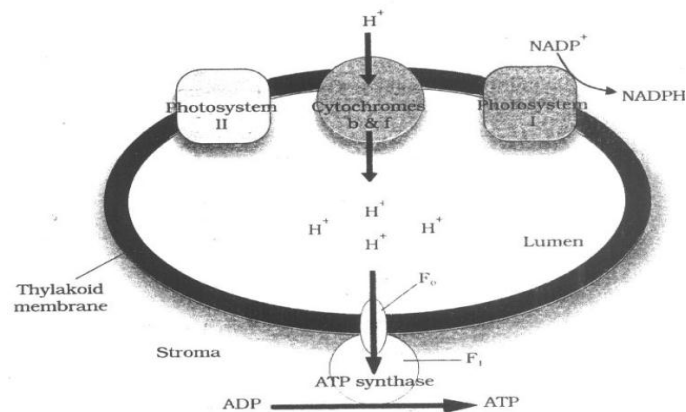
What would be expected to happen in the following cases?

- a) If ethephon is added to fruits and vegetables.
 - b) Decapitation of shoot is done in tea plantations.
7. A farmer observed drops of water along the margin of the leaves of herbaceous plants in his well irrigated field on a winter morning. Identify the phenomenon shown by the plants and the part through which it occurs. How does this phenomenon occur? 2

8. How would digestion get affected, if there is a blockade in the bile duct and HCl is not secreted? 2
9. In all connective tissues except blood, the cells secrete fibres of structural proteins. Mention the function of these fibres to the tissue. 2
10. a) In few fungi, during sexual reproduction two haploid hyphae do not immediately result in diploid cell (2n) formation. Name this intervening condition and phase of fungi. 2
- b) Name two symbiotic associations between algae and fungi. 2

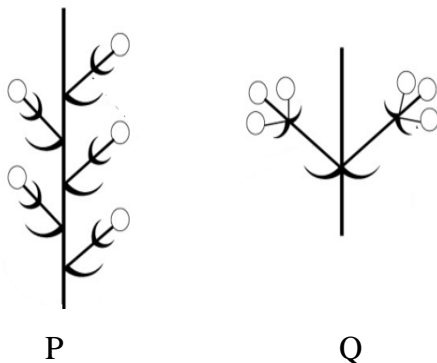
SECTION-C

11. Double fertilization is an event unique to angiosperms. Explain the event and its significance. 3
12. Given below is a diagram showing chemiosmosis in plants. 3



- a) How is the proton gradient caused across the membrane?
- b) Why is this gradient important?
- c) Name the four components required for chemiosmosis.
13. Cork cambium forms tissues that form the cork. Justify this statement. 3
14. Muscles play an active role in all the movements of the body. How are they classified based on their structure and function? 3
15. Like mitochondria, chloroplasts are not considered as a part of the endomembranous system. Comment on the similarities between the two organelles. 3
16. a) Almost all enzymes are proteins. How do enzymes bring about chemical conversions? 3
- b) How do enzyme catalysts differ from inorganic catalysts? (One point). 3
17. a) Explain, the structure of the plasma membrane as proposed by Singer and Nicolson. 3
- b) How does the fluid nature of the membrane help in the functioning of the cell? 3
18. Draw a neat diagram showing the duct system of the liver, gall bladder and pancreas and label the following: cystic duct, hepatic duct, bile duct and hepato-pancreatic duct. 3
19. The transpiration driven ascent of xylem sap depends mainly on the physical properties of water. Enumerate the physical properties of water that help in transpiration. 3

20. a) Identify the type of inflorescence P and Q shown in the figure given below.



- b) Explain, the aestivation and placentation seen in members of family Papilionoideae. 3
21. a) The following are the steps in the development of root nodules in leguminous plants. Arrange them in the correct sequence. 3
- Bacteria gets modified into bacteroids.
 - Infected thread causes the bacteria to inner cortex.
 - A mature nodule is complete with vascular tissues.
 - Infection of root hair causes it to curl.

b) Nitrogen is so important for soil fertility. What are the conditions necessary for fixation of atmospheric nitrogen by rhizobium?

22. Urine formation involves three main processes that take place in different parts of the nephron. Explain, the process of urine formation. 3

OR

Explain the following:

- Transmission of nerve impulse across the chemical synapse.
- Image formation on the retina.

SECTION-D

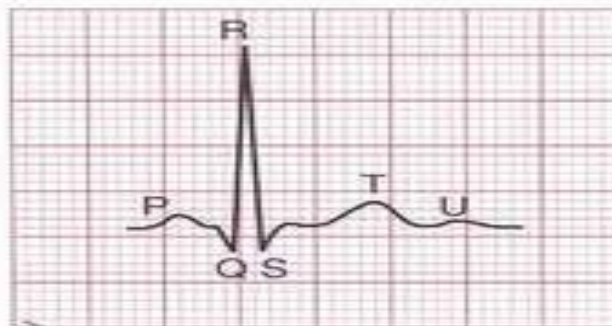
23. Thara's aunt has come from a nearby village to the city, Chennai, to consult a doctor. She has a five-year-old daughter and is pregnant for the second time. She is Rh-negative, her husband Rh-positive and their daughter, Rh-positive. Her doctor asked her to get her blood checked and then advised her to get an anti Rh-antibodies injection. Thara explains to her aunt all about Rh-factor and incompatibility and comforts her saying medicines are available to take care of the consequences of incompatibility. 4
- What is meant by Rh-positive?
 - Why is it necessary to check the Rh-factor of the blood of a pregnant woman?
 - What could be the problem that Thara's aunt is facing during her second pregnancy? Give the technical term for the above condition.
 - What values are shown by Thara in explaining about Rh-factor to her aunt?

SECTION-E

24. a) Give a schematic representation of the fate of pyruvate after it enters the mitochondrial matrix. 5
b) The respiratory quotient depends upon the type of respiratory substrate used during respiration. The RQ value of carbohydrates is 1. Justify using an equation.

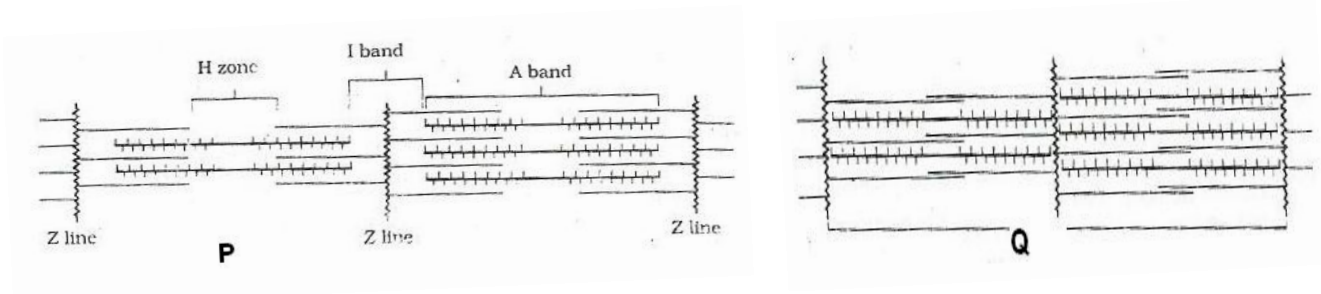
OR

- a) Diagrammatically represent the cycle of events that occurs during the Hatch and Slack Pathway.
b) Photorespiration is a wasteful process. Justify.
25. a) All vertebrates possess a muscular chambered heart. How does the heart function? 5
b) Given below is a graphical representation of standard ECG. What does the curve QRS indicate? Give its clinical significance.



OR

- a) Study the given figures and prepare a flow chart depicting the changes that take place from P to Q.



- b) Which part of our body helps in maintaining body balance and posture?
26. a) Mitosis result in the production of two cells, which are similar to each other. What would be the consequences of each of the following irregularities that occur during mitosis?
i) Nuclear membrane fail to disintegrate.
ii) Duplication of DNA does not occur.
iii) Centromere does not divide.
iv) Cytokinesis does not occur.
- b) Give two significances of this cell division in the life of an organism. 5

OR

- a) Who proposed the secondary structure of the DNA?
b) Enumerate the salient features of B-DNA.

*****THE END*****