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INDIAN SCHOOL SOHAR

Class: XI **FINAL EXAMINATION (2018 -19)** **Max. Marks: 70**

Date: 26.2.19 **BIOLOGY** **Duration: 3Hrs**

General Instructions:-

- *All questions are compulsory. There are 27 questions in all.*
- *This question paper consists of four sections **A, B, C & D.***
- *Section **A** contains **5** questions of **1**mark each, Section **B** contains **7** questions of **2** marks each. Section **C** contains **12** questions of 3 marks each and Section **D** **contains 3** questions of **5** marks each.*
- *Internal choices have been provided in two questions of one mark, two questions of two marks, four questions of three marks and three questions of five marks weightage. **A student has to attempt only one of the alternatives in such questions.***
- *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 **80-120** words each.*
- *Wherever necessary, the diagrams drawn should be neat and properly labeled.*

SECTION-A

1. RQ value of fats is less than one. Give reason.

OR

Presence of oxygen vital in the electron transport system. Justify. 1

2. State the cell theory. 1

3. In prokaryotes, name the circular DNA in addition to the genomic DNA and give its significance. 1

OR

Name the following:

a) Complex polysaccharide in the exoskeleton of arthropods.

b) The most abundant protein in the whole of the biosphere.

4. Cockroach is an uricotelic animal. Name the excretory organs in cockroach. 1

5. How does vernalisation differ from senescence? 1

SECTION-B

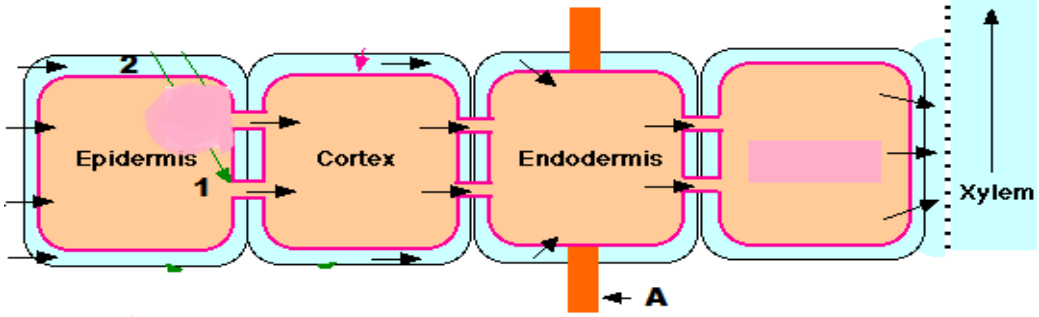
6. Name the hormone that affect the following events in the life of a plant.

a) induces dormancy in seeds/buds b) promotes senescence and abscission

c) stimulates the closure of stomata d) induce apical dominance.

OR

The given figure shows the two distinct pathways of water movement in roots. 2



a) Identify the pathway of water movement marked 1 and 2 in the given figure.

b) Label the part marked 'A'. How does water reach the xylem from 'A'?

7. List the fundamental characteristics that all chordates possess. 2

8. How are loose connective tissues classified, based on their ground substance and cells present? 2

9. The plant body of bryophytes is more differentiated than that of algae. Justify. (Two points). 2

10. In bacteria a special membranous structure, mesosome is formed by the extension of the plasma membrane into the cell. Mention the functions of mesosomes. 2

11. Comparison of the partial pressures (in mm Hg) of O_2 and CO_2 at different parts involved in diffusion is given in the form of a table. Fill in the given blanks. 2

Respiratory gases	Alveoli	Deoxygenated blood	Oxygenated blood	Tissues
O_2	104	i)----------	ii)----------	40
Co_2	40	iii)----------	40	iv)--------

12. Why is the sino-atrial node called the pacemaker of the heart?

OR

How do the following hormones act antagonistic to each other?

a) Thyrocalcitonin and parathormone b) Glucagon and insulin. 2

SECTION-C

13. In all animal tissues, there are specialized junctions that links individual cells. What are the types of cell junctions found in the epithelium? Mention their function? 3

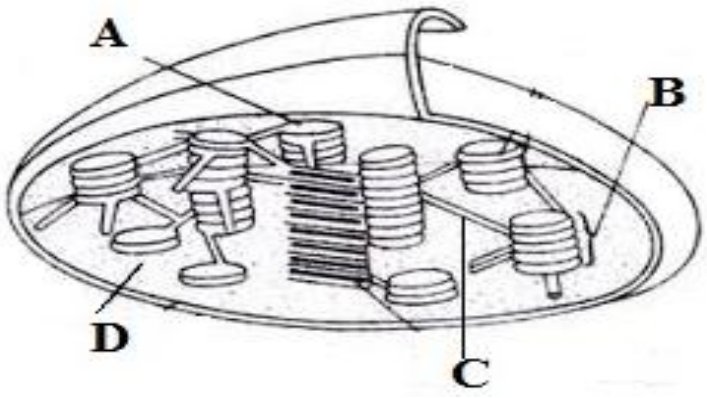
14. Mention the location and function of the following structures associated with a cell.

a) Cytoskeleton b) Centrioles c) Middle lamellae.

OR

a) In the given figure of an organelle, label the parts marked A to D.

b) Why is it considered to be semiautonomous? 3



15. Interphase is also called the resting phase. Briefly explain the different phases into which it is divided? 3

16. Apart from primary growth most dicotyledonous plants exhibit secondary growth. How does the formation of periderm take place in a dicot plant?

OR

The anatomy of the monocot root is similar to the dicot root. List three similarities and differences between them. 3

17. You would have observed a dark reddish brown scum formed at the site of a cut or an injury over a period of time. Explain the mechanism to prevent excessive loss of blood from the body. 3

18. The angiosperms are an exceptionally large group of plants. Diagrammatically represent the life cycle of an angiosperm. 3

19. Placentation is the arrangement of ovule within the ovary. Describe the different types of placentation seen in plants. Give an example each. 3

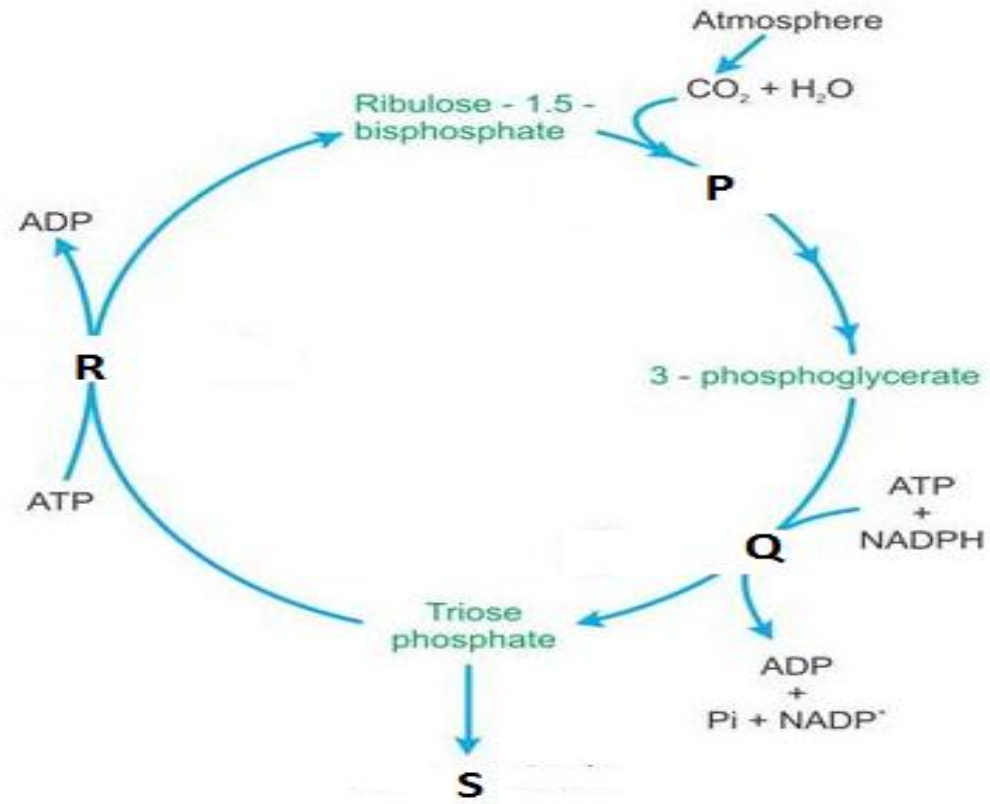
20. ATP synthesis is linked to the development of a proton gradient across the thylakoid membrane. How is a proton gradient created?

OR

Describe the transpiration pull model of water transport in plants. How is it useful to plants? 3

21. Explain the following mechanisms briefly:-
a) Formation of an image on the retina.
b) Inspiration. 3

22. a) In the given cycle fill in the parts marked P, Q, R and S.
b) How many ATP and NADPH molecules will be required to make one molecule of the product through this pathway? 3



23. a) The following are the important stages in the development of root nodules of leguminous plants. Arrange them in the correct sequence.
i) Bacteria gets modified into bacteroids
ii) Infected thread carries the bacteria to inner cortex.
iii) Infection of root hair causes it to curl.
iv) A mature nodule is complete with vascular tissues.
b) Describe the biochemical components required for biological nitrogen fixation. 3

24. Draw a neat labelled diagram of the functional units found in the kidneys.

OR

Draw a neat labeled diagram showing the path travelled in a knee jerk reflex. 3

SECTION-D

25. a) The stage between two meiotic division is called interkinesis and is generally short lived. Explain the stages that follow interkinesis.

b) Mention any two significance of meiosis.

OR

Nucleic acids serve as genetic material. Enumerate, the salient features of B-DNA, highlighting the nature of bonds linking the monomers. 5

26. a) What is meant by EMP pathway and where does it occur in a cell?

b) Glycolysis occurs in all organisms. Schematically represent the steps:
(i) Where ATP is utilized. (ii) Synthesis of ATP takes place.

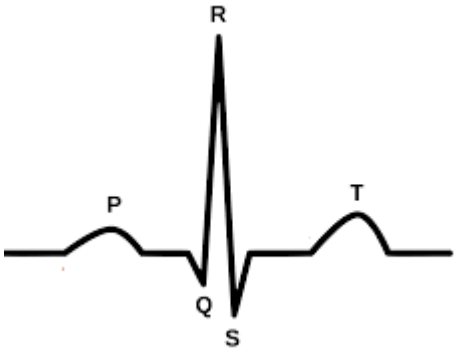
OR

a) How does Cyclic photophosphorylation of light reaction of photosynthesis differ from that of non-cyclic photophosphorylation? (Any three points).

b) Why is photorespiration considered a wasteful process? (Any two points) 5

27. a) Explain briefly the different steps involved in the pumping action of the heart in a cardiac cycle.

b) From the given representation of a standard ECG. What does QRS represent? Give its clinical significance.



OR

a) Mammals have the ability to produce a concentrated urine. Explain the mechanism of concentration of the filtrate.

b) What is the significance of juxta glomerular apparatus in kidney function? 5

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