AE-F

SUBJECT : BIOLOGY M.M. : 70

e : 3 hrs.

neral Instructions :

All questions are compulsory.

(i) The question paper consists of four sections A, B, C and D. Section-A consists 8 questions of 1 mark each, Section-B consists of 10 questions of 2 marks each, Section-C has 9 questions of 3 marks each whereas Section-D is of 3 questions of 5 marks each.

(iii) There is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and two questions of 5 marks weightage. A student has to attempt only one of the alternatives in such questions.

(iv) Wherever necessary, the diagrams drawn should be neat and properly labelled.

SECTION-A

Q1. What lubricates the freely moveable joints at the shoulder? (1)

Q2. Name two groups of plants that bear archegonia. (1)

Q3. Man has double circulation. Name the two circulations. (1)

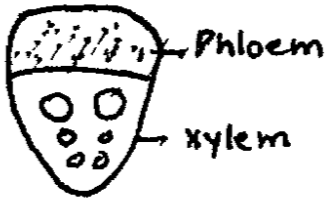
Q4. What would happen if a rotten fruit gets mixed up with unripe fruits? (1)

Q5. What is the life cycle with diploid adult and gametic meiosis called? (1)

Q6. Two factors determine the rate and net direction of osmosis. Name them. (1)

Q7. Define the term telocentric. (1)

Q8. Name the vascular bundle given below. Give an example of a plant in which it is found. (1)



SECTION-B

Q9. Define RQ. Calculate the value of RQ for tripalmitin which is used as substrate. (2)

Q10. Draw a diagram of human eye showing: (2)

(i) cornea (ii) aqueous chamber

(iii) retina (iv) blind spot

Q11. In the table given below enter the correct taxonomic categories. (2)

	Genus	Family	Order	Phylum/Div
(i) Man	.....	.....	.....	.....
(ii) Mango	.....	.....	.....	.....

Q12. Distinguish between cytokinesis in an animal cell and a plant cell. Give diagrams. (2)

Q13. Can all the four chambers of the human heart experience systole simultaneously? Explain. (2)

OR

Draw a standard ECG and label the different segments in it. What does the P wave and T wave represent?

Q14. What is a coenzyme? Bring out the difference between ligases & lyases. (2)

Q15. Complete the sequence given below: (2)

Fatty acids and glycerol being insoluble are first incorporated into small droplets called (1)..... which

move into (2)..... They are reformed into small protein coated fat globules (3)..... which are transported into (4)..... in the villi.

Q16. Give four differences between C_3 and C_4 plants. (2)

Q17. Underground parts of plants are not always roots. Justify your answer with an example. (2)

Q18. What is a mesosome in a prokaryotic cell? Mention its functions (any two). (2)

SECTION-C

Q19. How are gases exchanged in alveoli? Explain with reference to partial pressure. (3)

Q20. Write down the steps of conversion of atmospheric nitrogen to ammonia by nitrogenase enzyme. How is this enzyme protected in the root nodules of leguminous plants? (3)

Q21. (a) Draw the floral diagram of a family commonly called as the 'potato family'.

(b) Give the floral formula of Liliaceae.

(c) Give the symbols of actinomorphic and zygomorphic flowers. (3)

Q22. Which hormone disorder is responsible for the following? (3)

(a) Diabetes mellitus (b) Gigantism

(c) Cretinism

Q23. Define the following: (3)

(i) Synapsis (ii) Bivalent

(iii) Synaptonemal complex

Q24. Name the tissue that line the (3)

(i) bronchioles (ii) proximal convoluted tubule

State the advantage of the tissue being there.

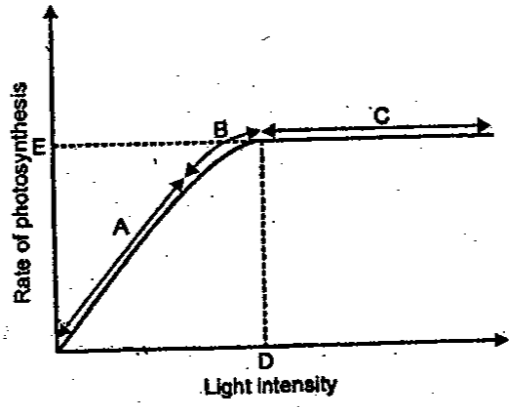
(3)

Q25. The given figure shows the effect of light on the rate photosynthesis. Based on the graph, answer the following questions:

(i) At which point(s) (A, B or C), in the curve is light a limiting factor?

(ii) What could be the limiting factor(s) in region A?

(iii) What do C and D represent on the curve? (3)



Q26. What are bacteriophages? Describe their structure. Name their genetic material. (3)

OR

Mention the levels of organisation seen in the following:

(i) *Sycon* (ii) *Obelia*

(iii) *Planaria* (iv) *Ascaris*

(iv) *Bombyx* (vi) *Ornithorynchus*

Q27. Where does electron transport system operate in mitochondria? Explain the role of oxygen, F_0- F_1 in the pathway. How many molecules of ATPare produced from one molecule of $FADH_2$ in electron transport? How? (3)

SECTION-D

Q28. Describe the process of urine formation in mammals.

OR

Explain different states of axon membrane during transmission of nerve impulse along a nerve fibre (non-myelinated and myelinated). (5)

Q29. (i) Draw a labeled diagram of areolar connective tissue.

(ii) Where is it found in the human body?

(iii) How does it differ from adipose tissue? (5)

OR

Explain the process of secondary growth in the stems of woody angiosperms with the help of schematic diagrams. What is its significance?

Q30. Rahul while driving his motorcycle met with a serious accident. What should be your duty towards Rahul as a passer by? Rahul's blood group is A+ve, hence what procedure should the doctor conduct before giving him a transfusion? What can be the probable blood group of the donors? (5)