Chattogram Board-2017

Biology First Paper

Subject Code : | 1 | 7 | 8 |

Time — 2 hours 35 minutes **Creative Essay Type** Full Marks — 50

[N.B. -The figures in the right margin indicate full marks. Read the stems carefully and answer the associated questions. Answer any five questions.]

1.▶ ✪ 'X' and 'Y' X' and 'Y' both are suffering from fever but with different symptoms. 'X' has severe headache, joint paints and rashes. 'Y' has vomiting tendency, anaemia and fever with shivering.

a. What is plasmid? 1

b. What does it mean by lytic phase? 2

c. Fever in 'Y' is caused by some pathogens. Draw a detailed diagram of the part of the pathogen's life cycle that occurs within the crop of a mosquito. 3

d. Pathogen that caused fever in 'X' is termed as the borderline between living and non-living things. Why so? Explain your answer with logic. 4

2.▶

Figure: A

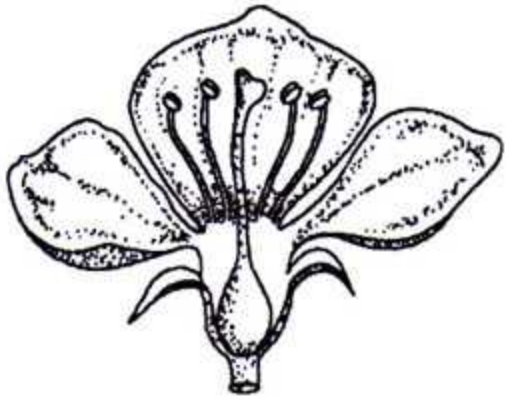


Figure: B

a. Which plant has the largest sperm in size? 1
b. What does it mean by floral formula? 2
c. Describe the reason for specialized root structure of the plant that has figure: A like plant parts. 3
d. Figure: A and Figure: B belong to the different categories of plant family. Discuss in detail. 4

3. ▶ Growing parts of plant have a special type of tissue in that region which helps in plant growth. At the later phase of life, these tissues give rise to different permanent tissue types, one of which is involved in transportation of substances in plant.

a. What is stele? 1
b. What does it mean by stomata? 2
c. Illustrate the classification of the tissue with the help of a table. 3
d. Describe the significance of the particular type of tissue mentioned in the stem in the growth, development and survival of the plant. 4

4. ▶

a. What is plasmodesmata? 1
b. *E. coli* is a prokaryote microorganism- explain this statement. 2
c. How new molecules are synthesized from the molecule of the stem? Explain. 3

d. Introducing changes to the structure of the molecule of the stem can be used for the wellbeing of humankind. Discuss with appropriate examples. 4

5. ▶ Plants of a special type of forest have a unique root system, which does not spread underground, rather comes up to the surface and creates finger like protrusions. Another type of plant has small, juicy leaves or has leaves transformed to thorns.

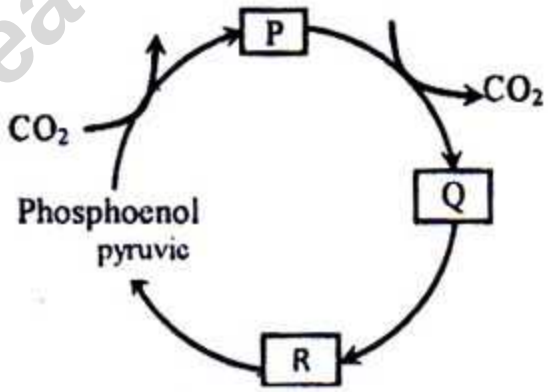
a. What is biome? 1

b. Flow on energy in the ecosystem is unidirectional—Explain. 2

c. How the plants of the first mentioned environment survive? Discuss in detail. 3

d. Describe the similarities between the two environments mentioned in the stem. 4

6. ▶



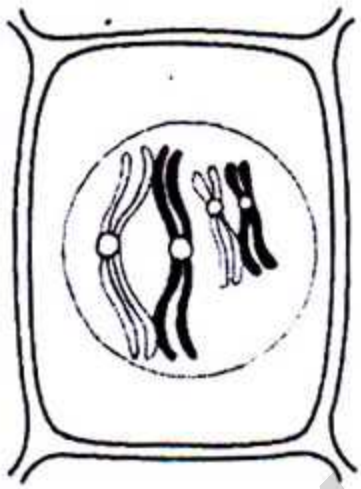
a. What is respiratory quotient? 1

b. What do you understand by limiting factor? 2

c. Complete the cycle of the diagram which is shown in the stem. 3

d. Write down the dissimilarities between the plants that produce 3PGA in the place of 'P' and the plants that have the exact cycle of the stem running in their system. 4

7.▶



a. What is synapsis? 1
b. Why meiosis is called as the reductional cell division? 2
c. Describe the phase shown in the figure of the stem. 3
d. Discuss the significance of the cell division process represented by the figure of the stem. 4

8.▶ ✪ Some thalloid plants are green coloured while some aren't. Some green coloured multicellular thalloid plants contains girdle chloroplast. One of the non-green ones is important in bakery industry.

a. What is holocarpic fungus? 1
b. What do you understand by isogamy? 2
c. With the help of a detailed diagram, describe the asexual reproduction of the green plant mentioned in the stem. 3
d. Compare between the two types of plants as mentioned in the stem in terms of their vegetative reproduction system. 4

Biology First Paper
Creative Multiple Choice Questions

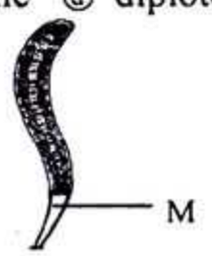
Time — 25 minutes | Marks — 25

[N.B. — Answer all the questions. Each question carries one mark. Block fully, with a ball-point pen, the circle of the letter that stands for the correct/best answer in the "Answer Sheet" for Multiple Choice Questions Examination. use a ball point pen. Each question carries 1 mark.]

1. ✪ Attractive lichens with several branches is called?
ⓐ leprose ⓑ foliose
ⓒ fruticose ⓓ crustose

2. Which one is a preservation system regarding X?
ⓐ Safari Park
ⓑ Halda river
ⓒ Theme reserve
ⓓ Seed bank

3. Which phase of meiosis cell division has bivalent formation step?
ⓐ leptotene ⓑ zygotene
ⓒ pachytene ⓓ diplotene



4. 'M' labelled part of the figures is named as?
ⓐ holdfast
ⓑ primordial germ cell
ⓒ akinete
ⓓ heterocyst

5. Which one of the following plants reproduces via roots?
ⓐ dahlia ⓑ rose
ⓒ mango ⓓ bamboo

Read the following stem carefully and answer the questions 6-7:
Complete oxidation of one molecule of glucose—
A glycolysis → net energy → 8 ATP
B acetyl CoA net energy → [?]
C Kreb's cycle → net energy → 24 ATP

6. What is the net amount of energy in 'B' of the stem?
ⓐ 3 ⓑ 6
ⓒ 12 ⓓ 14

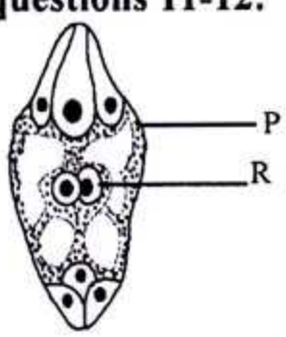
7. Of the stem —
i. A part takes place in cytoplasm
ii. CO_2 is produced in B part
iii. C part takes place in chloroplast
Which one is correct?
ⓐ i and ii ⓑ i and iii
ⓒ ii and iii ⓓ i, ii and iii

8. In which phase of the erythrocytic schizogony produces a waste material named hemozoin?
ⓐ signet ring ⓑ rosette
ⓒ trophozoite ⓓ schizont

9. Roots of Cycas —
i. has innumerous number of branches
ii. contains Nostoc
iii. has the shape of sea corals
Which one is correct?
ⓐ i and ii ⓑ i and iii
ⓒ ii and iii ⓓ i, ii and iii

10. ✪ Which scientist separated the virus TMV from tobacco leaf in crystallization method?
ⓐ Adolf Mayer ⓑ Ivanovosky
ⓒ Stanley ⓓ Roden

Carefully observe the following stem to answer the questions 11-12:

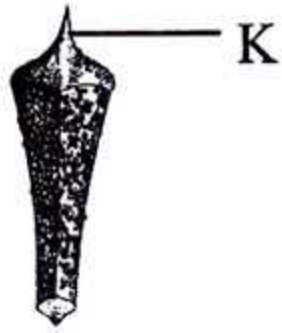


11. What type of embryo sac 'P' is?
ⓐ monosporic ⓑ bisporic
ⓒ tetrasporic ⓓ polysporic

12. If male gamete fuses with the 'R' part of the stem, then it is called —
i. syngamy
ii. endosperm
iii. tri-fertilization
Which one is correct?
ⓐ i and ii ⓑ i and iii
ⓒ ii and iii ⓓ i, ii and iii

13. **What are produced in Oxidative Phosphorylation?**
ⓐ $NADPH_2$ oxidizes to produce 2ATP
ⓑ 3 ATP from $FADH_2$
ⓒ Oxidized energy is reduced
ⓓ ADP, iP and electron altogether form ATP

14. **Which vitamin is found in super rice?**
ⓐ A ⓑ B-6
ⓒ D ⓓ E



15. **What is the name of 'K' in the stem?**
ⓐ pinnule ⓑ apophyses
ⓒ sorus ⓓ ovule

16. **Which one of the following proteins are derived for barley?**
ⓐ hordein ⓑ gliadin
ⓒ zein ⓓ oryzenin

17. **Where does meiosis take place in sporophytic plant?**
ⓐ somatic cell
ⓑ germ cell
ⓒ primordial germ cell
ⓓ zygote

Read the following stem carefully and answer the questions no. 18-19:


Fig: A


Fig: B

18. **What type of vascular bundle is present in figure B?**
ⓐ collateral open
ⓑ radial
ⓒ bicollateral open
ⓓ concentric

19. **For both of the figures A and B —**
i. cambium is present
ii. secondary growth can occur in A
iii. xylem exarch in B
Which one is correct?
ⓐ i and ii ⓑ i and iii
ⓒ ii and iii ⓓ i, ii and iii

20. **How many bases creates a codon in RNA?**
ⓐ 2 ⓑ 3
ⓒ 4 ⓓ 6

Answer the questions no. 21-22 according to the following stem:
Mr. Jasim has a grape garden. Juice extracted from grapes looks cloudy. To make the juice look transparent, he uses a special kind of organic compound.

21. **What compound is used by Mr. Jasim?**
ⓐ pectin ⓑ trypsin
ⓒ rennin ⓓ zymase

22. **Nature of the compound —**
i. colloidal
ii. is made of protein
iii. remains unchanged at the end of the reaction
Which one is correct?
ⓐ i and ii ⓑ i and iii
ⓒ ii and iii ⓓ i, ii and iii

23. **Which one of the followings is a fruit of the family Poaceae?**
ⓐ siliqua ⓑ capsule
ⓒ caryopsis ⓓ lomentum

24. **Which enzyme is called the molecular scissor for DNA?**
ⓐ restriction ⓑ polymerase
c ligase ⓓ transcriptase

25. **Which one is the stop codon?**
ⓐ AUG ⓑ CCG
ⓒ BAG ⓓ UAU

Ans	1	ⓒ	2	ⓓ	3	ⓑ	4	ⓐ	5	ⓐ	6	ⓑ	7	ⓐ	8	ⓒ	9	ⓓ	10	ⓒ	11	ⓓ	12	ⓑ	13	ⓓ
	14	ⓐ	15	ⓑ	16	ⓐ	17	ⓒ	18	ⓑ	19	ⓒ	20	ⓑ	21	ⓐ	22	ⓑ	23	ⓒ	24	ⓐ	25	ⓐ		