

Roll No. \_\_\_\_\_

Code : 112017-044-A

Please check that this question paper contains **23** questions and **7** printed pages.

**CLASS-XI  
BIOLOGY**

**Time Allowed : 3 Hours**

**Maximum Marks : 60**

**General Instructions :**

- (i) *All questions are compulsory.*
- (ii) *There are 23 questions in all. Question No.1 to 6 carry one mark each; questions 7 to 10 carry two marks each; questions 11 to 19 carry three marks each; question 20 carry four marks and questions 21 to 23 carry five marks each.*
- (iii) *There is no overall choice. However, internal choices have been provided in one question of two marks, one question of three marks and all the questions of five marks. You have to attempt only one of the choices in such questions.*
- (iv) *Fifteen minutes time has been allotted to read the question paper. During this time, the student will only read the question paper and will not write any answer on the answer script.*

**Note :** *OTBA questions of ten marks along with the text material will be provided separately.*

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**Section-A**

- 1. (a) Name the fungus which is used extensively in biochemical and genetic work.  
(b) What are the sexual spores of ascomycetes called ? (1)
- 2. List any two fundamental characteristic features of phylum chordata comprising animals like fishes, amphibians, reptiles, birds and mammals. (1)
- 3. Distinguish between the ribosomes of chloroplast and ribosomes in the cytoplasm of the eukaryotic cell. (1)
- 4. Why does the structure of amino acids change in solutions of different pHs ? (1)

5. Despite the absence of circulatory system in plants, the flow of water upward through the xylem in plants can achieve fairly high rates, upto 15 metres per hour. Name the most important physiological phenomenon which is responsible for the upward movement of water. (1)
6. Fill in the blanks with appropriate enzymes that bring the required changes in the following :
- (a) Trypsinogen  $\longrightarrow$  Trypsin
- (b) Di and Monoglycerides  $\longrightarrow$  Fatty acids + Glycerol (1)

### Section-B

7. Both gymnosperms and angiosperms bear seeds, then why are they classified separately ? Give reasons for such a classification. (2)
8. In which phase of meiosis are the following formed ?
- (a) Synaptonemal Complex
- (b) Recombination nodules
- (c) Chiasmata
- (d) Diad of cells (2)

### OR

Which of the following statements regarding mitosis is associated with (A) Prophase (B) Metaphase (C) Anaphase (D) Telophase.

- (a) Chromosomes are the thickest and shortest.
- (b) The nuclear envelope reappears.
- (c) Chromosomal material condenses to form compact mitotic chromosomes.
- (d) Chromatids move apart. (2)
9. (a) How many times do the chromosomes replicate during meiotic division ? Why is meiosis II necessary ?
- (b) The plant cell cannot undergo cytokinesis by the formation of a furrow in the plasma membrane. Why ? (2)
10. Most of the water flow in the root cortex occurs via the apoplast but not in endodermis. Give reason. (2)

**Section-C**

11. Give any three points of difference between the animals belonging to phylum Annelida and Arthropoda.

**OR**

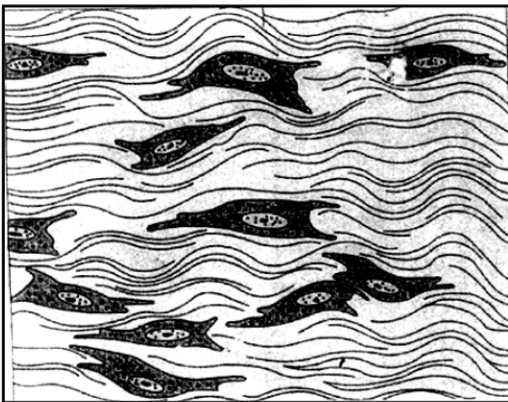
Match the distinctive features with the phylum given below :

<b>Distinctive features</b>	<b>Phylum</b>
(a) Comb plates for Locomotion	Platyhelminthes
(b) Cnidoblasts present	Ctenophora
(c) Body segmentation like rings	Porifera
(d) Jointed appendages	Annelida
(e) Body with pores in walls and canals in the body	Arthropoda
(f) Flat body with suckers	Gnidaria (3)

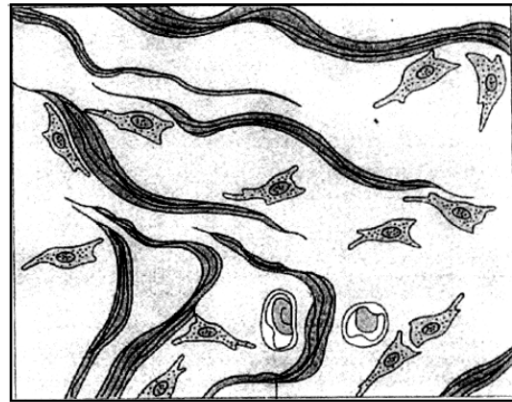
12. Name and describe with the help of diagrams any three types of aestivations found in flowering plants. (3)

13. Observe the given diagrams (A) and (B) and answer the following questions.

- (a) Name the tissues depicted in the diagrams (A) and (B).  
(b) Why are they so called ? (3)



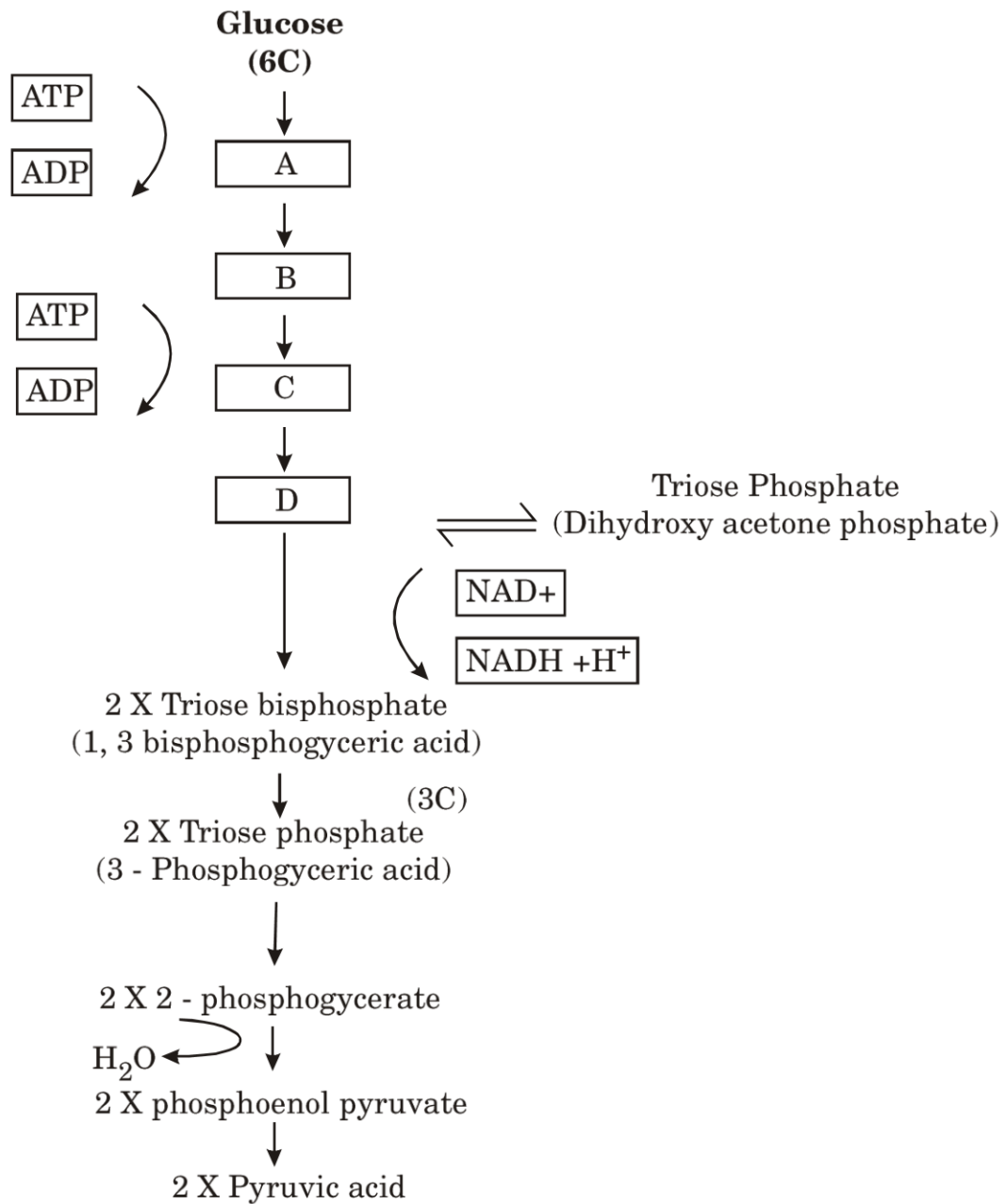
(A)



(B)

14. Describe with the help of a labelled diagram the structure of the cell organelle, which is the power house of the cell. (3)
15. Illustrate the nature of bonds linking monomers to make polymer in case of proteins and polysaccharides. (3)
16. Write any one main function of the following : (3)
- (a) Rough Endoplasmic reticulum
  - (b) Golgi apparatus
  - (c) Leucoplasts
  - (d) Cytoskeleton
  - (e) Centriole
  - (f) Fimbriae
17. Give reasons for the following :
- (a) Higher plants fail to assimilate atmospheric free nitrogen directly.
  - (b) The root nodule bacteria – Rhizobium can fix atmospheric nitrogen only in the presence of the pigment – leghaemoglobin.
  - (b) The yield of maize increases when a farmer adds *Azotobacter* culture to the soil before sowing. (3)
18. Gibberellins are useful in agriculture to improve productivity of crops. Give three points in support of your answer. (3)

19. (a) The figure given below shows the steps in glycolysis. Fill in the missing steps- A, B, C & D.



- (b) Mention the steps where the molecules of ATP are produced in glycolysis. (3)

20. Ravi's uncle was a chain smoker. He often complained of breathing problem. Being a student of Biology, Ravi knew about the damage caused to the lungs due to cigarette smoking. So, he always tried to persuade his uncle to quit smoking. Read the above passage and accordingly answer the following questions :

- (a) What is the effect of smoking on our lungs ?
- (b) What term is used for this Chronic disorder ?
- (c) Mention one value possessed by Ravi.
- (d) Why does Asthma causes difficulty in breathing ? (4)

#### **Section-D**

21. (a) Draw a diagram of a portion of the cross section of a primary dicot root and label any four parts.
- (b) How is the cambium ring formed during secondary growth in dicot root ?

**OR**

- (a) Draw a diagram of a portion of the cross section of a Monocot root and label any four parts.
- (b) List any two differences between the anatomy of dicot and monocot root with reference to vascular bundles and pith. (5)
22. Photorespiration does not occur in  $C_4$  plants. Explain the special pathway adopted by  $C_4$  plants to avoid photorespiration.

**OR**

Explain the process of photorespiration taking place in  $C_3$  plants. Why is photorespiration considered a wasteful process ? (5)

23. Explain the mechanism of muscle contraction by the sliding filament theory, with the help of a neat, labelled diagram.

**OR**

Explain the mechanism of generation of nerve impulse and its conduction along an axon with the help of a neat, labelled diagram. (5)

