

**General Instructions :**

- (i) All questions are compulsory.
- (ii) The question paper has five sections and 10 questions. All questions are compulsory.
- (iii) Section - A has 4 questions of 1 mark each; Section – B has one question of 2 marks ;  
Section – C has one question of 3 marks ; Section – D has one case based question of 4 marks ;  
and Section E has one question of 5 marks .
- (iv) There is no overall choice. However, internal choices have been provided in some questions.  
A student has to attempt only one of the alternatives in such questions.
- (v) Wherever necessary, neat and properly labeled diagrams should be drawn.

**SECTION- A**

1. Given below are some plants and their groups. Select the correct match. 1

<b>Bacteria</b>	<b>Shape</b>
A. Funaria	i Pteridophyte
B. Equisetum	ii Gymnosperm
C. Laminaria	iii Moss
D. Ginkgo	iv Phaeophyceae

- (a) A-i, B-ii, C-iv, D-iii
- (b) A-iii, B-ii, C-i, D-iv
- (c) A-iii, B-i, C-iv, D-ii
- (d) A-ii, B-iii, C-iv, D-i

2. Many blue-green algae occur in thermal springs(hot-water springs). The temperature tolerance of these algae have been attributed to their 1

- (a) mitochondrial structure
- (b) importance of bonds in their proteins
- (c) cell wall structure
- (d) cellular organization

3. The main feature of Phylum Cnidaria is the presence of 1

- (a) eight ciliated rows of comb plates
- (b) nephridia
- (c) tentacles
- (d) Stinging capsules

4. Which among the following is not included in the taxonomic category?

1

- (a) Kingdom
- (b) Key
- (c) Family
- (d) Species.

**Question no 5 and 6 consist of two statements- Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below :**

- A. Both A and R are true and R is the correct explanation of A.**
- B. Both A and R are true but R is not the correct explanation of A.**
- C. A is true but R is false.**
- D. A is false but R is true**

5- **Assertion :** Gymnosperms are heterosporous in nature.

1

**Reason :** In gymnosperms spores are confined within the sporangia .

6- **Assertion:** Archaeobacteria can survive in extreme conditions.

1

**Reason :** The Archaeobacteria have different cell wall structure as compared to other bacteria .

#### SECTION – B

7- Bryophytes are called amphibians of Plant Kingdom. Mention the role played by bryophytes in ecological succession? 2

#### SECTION – C

8 - (a) Figure given below depicts an edible fungi. Name the class it belongs to and mention its mycelial structure. 3



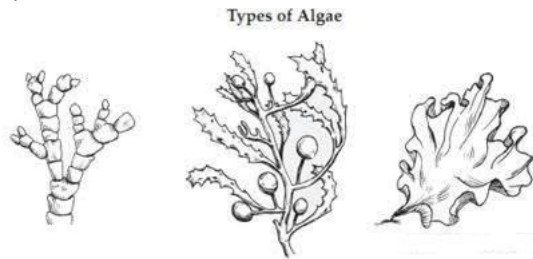
(b) What is a bacteriophage? Draw a neat diagram of a bacteriophage and label any three parts.

**SECTION - D**

9- Read the following and answer the questions that follow :

4

Algae are diverse group of aquatic organisms that have the ability to conduct photosynthesis. They are unicellular or multicellular and undifferentiated organisms that occur in variety of forms and sizes. Algae belong to a polyphyletic group, i.e. the organisms of this group are not necessarily related to each other. Based on the pigment , composition and reserved food material, algae has been divided into three major classes, viz. Chlorophyceae, Phaeophyceae and Rhodophyceae. The members of these classes also differ in cell wall composition, stored food material, body structure, mode of reproduction, etc.



- a) Name the reserve food material present in the members of Chlorophyceae and Rhodophyceae.
- b) List the pigments of class phaeophyceae which gives typical brown colour to these algae.
- c) Explain any two types of sexual reproduction in algae based on the morphology of fusing gametes.

**OR**

- (c) Mention any two ways in which algae are beneficial to the environment.

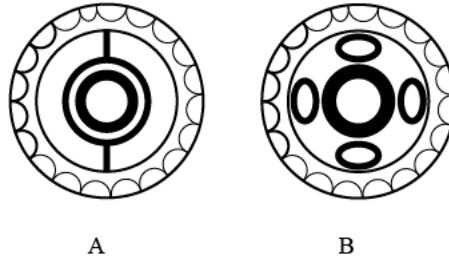
**SECTION – E**

10- a) Given below is the list of organs or morphological structures present in the members of specific phyla. Name the phyla corresponding to these organs.

5

Organ / structure	Phylum
i-Radula	
ii-Muscular Pharynx	
iii-Hooks	
iv-Book Gills	
v-Ciliated comb plates	
vi- Proboscis	

b) Figures given below depict the sectional view of body cavity present in animals. Explain the type of body cavity as shown in figure A and B.

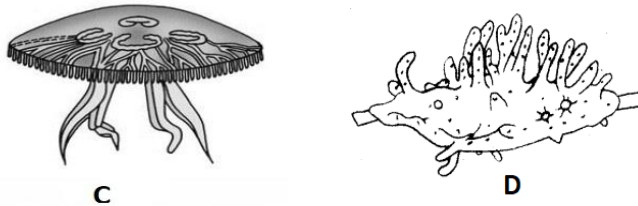


OR

a) State the importance of the following features to the given organisms :

- i- Ostium in sponges,
- ii- Flame cells in flatworms
- iii- Water vascular system in sea urchin

b) The given figures C and D represent the members of two marine phyla. Identify the phyla and distinguish between them on the basis of their gastrovascular cavity and body symmetry.



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Section – C has one question of 3 marks ; Section – D has one case based question of 4 marks ;  
and Section E has one question of 5 marks .
- (ix) There is no overall choice. However, internal choices have been provided in some questions.  
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- (x) Wherever necessary, neat and properly labeled diagrams should be drawn.

**SECTION- A**

2. Which organism causes red tides in the sea? 1
- (e) Mycoplasma
  - (f) Red Algae
  - (g) Diatoms
  - (h) Gonyaulax.
3. Match the following and choose the correct match. 1
- | Column I   | Column II       |
|------------|-----------------|
| A. Family  | i. tuberosum    |
| B. Kingdom | ii. Poales      |
| C. Order   | iii. Solanaceae |
| D. Species | iv. Plantae     |
- (a) A-i, B-ii, C-iv, D- iii
  - (b) A-iii, B-ii, C-i, D- iv
  - (c) A-iii, B-iv, C-ii, D-i
  - (d) A-ii, B-iii, C-iv, D- i
4. Which among the following is not included in the taxonomic category? 1
- (a) Kingdom
  - (b) Key
  - (c) Family
  - (d) Species

5. Which one of the following is not the characteristic feature of the phylum–Arthropoda?

- (a) Presence of sensory organs
- (b) Parapodia for swimming
- (c) Jointed appendages
- (d) Chitinous exoskeleton

Question no 5 and 6 consist of two statements- Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below :

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- B. Both A and R are true but R is not the correct explanation of A.
- C. A is true but R is false.
- D. A is false but R is true

5- **Assertion :** In gymnosperms male and female gametophytes have free living existence. 1  
**Reason :** Gametophytes in gymnosperms are confined within the sporangia .

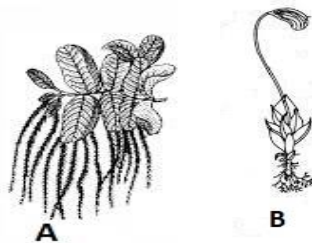
6- **Assertion:** Archaeobacteria can survive in extreme conditions. 1  
**Reason :** The Archaeobacteria have different cell wall structure as compared to other bacteria .

### SECTION – B

7- The members of Phaeophyceae are found primarily in marine habitats. Explain the typical plant body of brown algae with the help of a neat diagram of any one member. 2

### SECTION – C

8 - The figures A and B given below represent the members of plants which require water for fertilisation. 3



- (a) Identify the plants A and B. Mention the plant groups they belong to.
- (b) How do these plants differ from each other with respect to their life cycle and anatomical structure.

**SECTION - D**

9- Read the following and answer the questions that follow :

4

The gymnosperms are plants in which the ovules are not enclosed by any ovary wall and remain exposed, both before and after fertilisation. The seeds that develop post-fertilisation, are not covered, i.e., are naked. Gymnosperms include medium-sized trees or tall trees and shrubs. One of the gymnosperms, the giant redwood tree Sequoia is one of the tallest tree species. The roots are generally tap roots. Roots in some genera have fungal association while in some others, roots are specialized. The leaves may be simple or compound. In Cycas the pinnate leaves persist for a few years. The leaves in gymnosperms are well-adapted to withstand extremes of temperature, humidity and wind. Gymnosperms are heterosporous.



**Fig-1**

- d) Identify the plant shown in the figure 1. Name its female sex organ.
- e) Why are gymnosperms termed as heterosporous plants ?
- f) Explain the terms mycorrhiza and coralloid roots and state their significance.

**OR**

- c) Leaves in gymnosperms are well adapted to withstand the extremes of temperature. Mention any two such adaptations seen in the leaves.

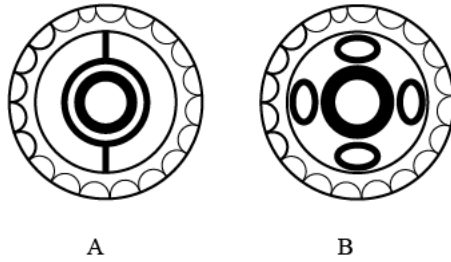
**SECTION – E**

10- a) Given below is the list of organs or morphological structures present in the members of specific phylums. Identify the phylums corresponding to these organs.

5

Organ / structure	Phylum
a) Radula	
b) Metamerous	
c) Hooks	
d) Book Gills	
e) Ciliated comb plates	
f) Stinging cells	

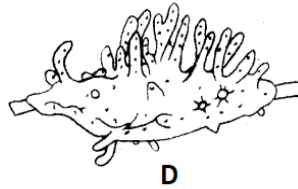
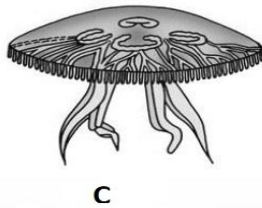
- b) Figures given below depict the sectional view of body cavity present in animals.  
Explain the type of body cavity as shown in figure A and B.



- c) State the importance of the following features to the given organisms :

- iv- Osculum in Porifera,
- v- Flame cells in Platyhelminthes
- vi- Cnidoblast in Coelentrata

- d) The given figures C and D represent the members of two marine phyla.  
Identify the phyla and distinguish between them on the basis of their gastrovascular cavity and body shape.



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