



**General Instructions :**

- i) There are a total of 33 questions and five sections in the question paper. All questions are compulsory.
- ii) Section A contains, question number 1 to 17, objective type questions of one mark each.
- iii) Section B contains, question number 18 to 21, competency case study questions .
- iv) Section C contains, question number 22 to 26, short answer type questions of two marks each.
- v) Section D contains, question numbers 27 to 31, long answer type I questions of three marks each.
- vi) Section E contains, question numbers 32 and 33, long answer type II questions of five marks each.
- vii) 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.

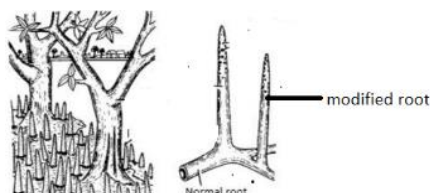
**SECTION- A**

**Answer the following questions in one word or in one sentence.**

1. Biologists follow universally accepted principles to provide scientific name to living organisms. 1  
Name the two components of the scientific name.
2. Two kingdom classification was considered inadequate. Justify giving one example. 1
3. Why bacteria and blue green algae are included among prokaryotes? Give one reason. 1
4. Give the technical terms for : a) A sterile anther      b) Fruit formed without fertilization 1
5. Flatworms are mostly endoparasites found in animals including humans. Mention the special organs which help them to adhere to the surface of internal organs. 1
6. Identify the plant species given below. Label the part marked as **P**. 1



7. The life cycle of a moss is characterized by two stages. Name the stage that develops from a spore and the stage that bears sex organs. 1
8. The figure given below shows the roots modified for performing special function. What are such roots called? Mention the special function performed by these roots. 1



9. Agar is a commercial product obtained from algae. State the commercial use of agar. 1
10. The property of emitting light is well- marked in comb jellies. Name the phylum referred and give technical term for this feature. 1
11. In some animal groups, the body is divided into compartments with the serial repetition of at least some organs. This characteristic feature is called: 1
- Segmentation
  - Metamerism
  - Metagenesis
  - Organisation
12. Which of the following group causes red tides in the sea? 1
- Dinoflagellates
  - Euglenoids
  - Protozoans
  - Red algae
13. Which of the following taxon will have maximum number of similar species? 1
- Order
  - Phylum
  - Family
  - Genus

**Question no 14 to 17 consist of two statements- Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below :**

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

- 14- **Assertion :** Members of phylum aschelminthes are called roundworms. 1  
**Reason :** Body of aschelminthes is circular in cross-section.
- 15- **Assertion:** Carolus Linnaeus is called father of taxanomy. 1  
**Reason :** Linnaeus proposed the scientific system of naming the organisms.
- 16 - **Assertion :** Archaeobacteria are able to survive in harsh habitats. 1  
**Reason :** Primitive bacteria possess cell membrane made of chitin.
- 17- **Assertion :** Phylogenetic classifications are accepted by biologists at present. 1  
**Reason :** Natural classifications have several limitations.

## SECTION – B

### 18 – Read the following and answer the questions from (i) to (iv) given below :

4

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. In some genera small specialized roots called coralloid roots are present. The leaves may be simple or compound. In Cycas the pinnate leaves persist for few years. The leaves in gymnosperms are well adapted to extremes of temperature, humidity and wind. Gymnosperms are heterosporous.

- i) Which of the following features distinguish gymnosperms from fern plants?
  - a) Absence of flowers
  - b) Presence of vascular tissues
  - c) Presence of naked seeds
  - d) Leaves are pinnately compound
  
- ii) Which of the following plant produces seeds but not flowers?
  - a) Mint
  - b) Maize
  - c) Fern
  - d) Pinus
  
- iii) Gymnosperms are called heterosporous plants because -----
  - a) they produce diploid microspores and megaspores.
  - b) large number of spores are produced in sporangia.
  - c) different types of spores are produced in sporophylls.
  - d) haploid microspores and diploid megaspores are produced in sporangia.
  
- iv) Specialised coralloid roots are found in
  - a) Cycas
  - b) Ginkgo
  - c) Pinus
  - d) Cedrus

### 19- Read the following and answer the questions (i) to (iv) given below:

4

Megha is a biology student. Her father, who is a biology teacher took her to a nearby garden and showed various flowers. Pointing towards a sunflower plant, father asked Megha to show him the flower of this plant. Megha plucked the flower twig and pointed towards the big yellow structure at the tip of the twig. Father laughed and clarified that it is not a single flower but a group of several flowers arranged in a disc like structure.

- i) The type of inflorescence seen in mustard plant is
  - a) Raceme
  - b) Spike
  - c) Cyme
  - d) Capitulum

- ii) The most important function of inflorescence is to help in
  - a) formation of large number of fruits
  - b) dispersal of seeds
  - c) release of pollen grains
  - d) attracting insects for cross pollination.
  
- iii) When a flower can be divided into two equal halves in any radial plane passing through the centre, flower is described as
  - a) symmetric
  - b) actinomorphic
  - c) zygomorphic
  - d) superior
  
- iv) While studying the parts of a flower, a student noticed that ovules were present on the central axis and septa were absent. The placentation in the flower could be identified as
  - a) Axile
  - b) Free central
  - c) Marginal
  - d) Parietal

**Q 20- Read the following and answer the questions from (i) to (iii) given below :**

**5**

Fungi inhabit every natural and anthropogenic environment on Earth. They have highly varied life-styles including saprobes (using only dead biomass as a nutrient source), pathogens (feeding on living biomass), and symbionts (co-existing with other organisms). These distinctions are not absolute as many species employ several life styles (e.g. saprobe and opportunistic pathogen, saprobe and mycorrhiza). To efficiently survive in these different and often changing environments, fungi need to be able to modify their physiology and in some cases will even modify their local environment. (Source- Science.gov-United states)



- i) What is the cell wall of fungi composed of ?
- ii) Distinguish between lichens and mycorrhiza.
- iii) Comment on the economic importance of sac fungi.

**21 -Read the following and answer the questions (i) to (iii) given below :**

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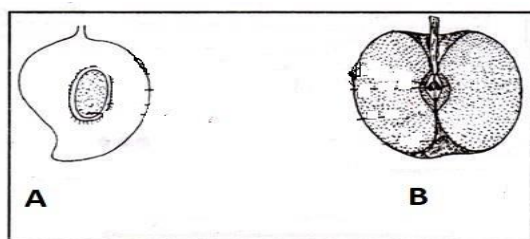
Ravi lives in a housing colony which has a garden, pond and other water features to their landscape. Past few months a steep rise in the cases of malaria and dengue fever was observed. On investigating the cause, it was concluded that poor maintenance of water bodies and open drainage was the prime reason for increase in the population of mosquitoes. Residents of the colony were instructed to maintain cleanliness by adopting appropriate measures.

- i) How do mosquitoes contribute to the cause of diseases?
- ii) Comment on the body design of Arthropods.
- iii) Suggest appropriate measures that should be taken to control breeding of mosquitoes.

**SECTION – C**

**22-** The given figures depict two fruits which differ in the method of their formation. Give suitable terms to these fruits. Name the edible parts in these fruits.

2



**23-** Why growth and reproduction cannot be taken as defining property of all living organisms?

2

**24-** What are the advantages of scientific names over common names ?

2

**25-**The leaves in gymnosperms are adapted to withstand xerophytic conditions. Justify.

2

**OR**

Distinguish between red algae and brown algae with respect to their major pigments and reserve food material.

**26- Complete the given table by filling the blanks from A to D.**

2

Phylum	Specialised cell/Organ	Function
Platyhelminthes	A)-----	excretion
B)-----	Radula	C)-----
D)-----	Choanocytes	Maintain water current

**SECTION – D**

**27 –** Define the term aestivation. Illustrate the type of aestivation seen in China rose and Bean flower with a neat diagram.

3

- 28 - Comment on the mycelium and nature of asexual spores of the classes phycomyces, basidiomycetes and deuteromycetes. 3
- 29 - Which group of plants are referred as the amphibians of plant kingdom and why? Explain their role in plant succession. 3
- 30 - Comment on the economic importance of algae giving suitable examples.( three points) 3
- 31 - Discuss the adaptations observed in the body of Aves which help them to survive in aerial mode of life? 3

**OR**

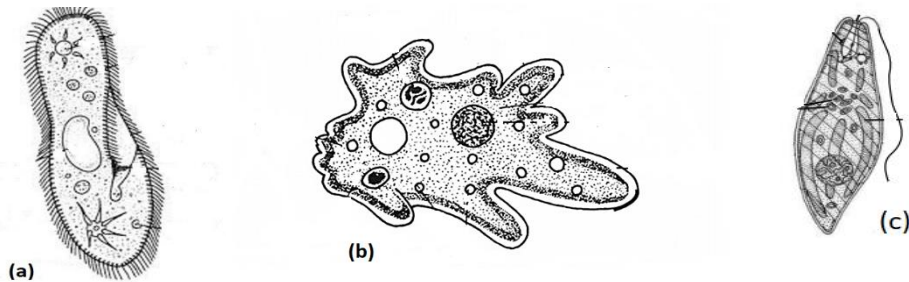
All vertebrates are chordates but all chordates are not vertebrates. Justify

**SECTION – E**

- 32- Classification systems for the living organisms have undergone several changes over time. 5
- a) Make an outline of five kingdom classification.
- b) Explain how five kingdom classification eliminated the drawbacks of two kingdom classification.

**OR**

Given figures show the members of a protistan group. On the basis of the figures answer the following questions:



- i) Identify the organism (a) and (c) and mention the protistan group they belong to.
- ii) Comment on the mode of nutrition in organisms (b) and (c).
- iii) Which of these organisms is covered with protein rich layer and is devoid of cell wall? Name the layer present.
- iv) Give the significance of diatomaceous earth.

- 33- a) Draw a neat diagram of vertical section of maize seed and label the following parts with their proper name: 5
- i) Protein rich layer that separates the embryo from endosperm.
- ii) Cotyledon
- iii) Sheath that covers plumule.
- b) Mention the role of cotyledon in the maize seed.

**OR**

- a) Define the term inflorescence.
- b) Explain two main types of inflorescence with one example of each.
- c) Draw the floral diagram of the potato family.

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