



विद्या सर्वार्थ साधिका

# ANANDALAYA

## PERIODIC TEST - 2

Class: XI

Subject: Biology (044)

Date : 21-09-2024

MM : 70

Time: 3 Hours

### General Instructions:

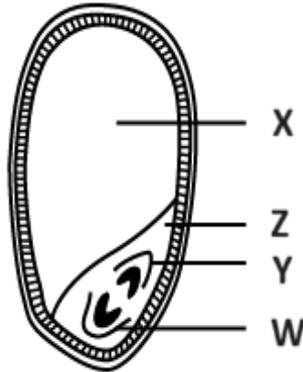
1. There are 33 questions in all. All questions are compulsory.
2. This question paper has five sections: Section A, Section B, Section C, Section D and Section E. All the sections are compulsory.
3. Section A consists of 12 MCQs and 4 Assertion and Reason questions of 1 mark each, Section B consists of 5 questions of 2 marks each, Section C consists of seven questions of 3 marks each, Section D consists of two case study-based questions of 4 marks each and Section E consists of three long questions of 5 marks each.
4. There is no overall choice. However, an internal choice has been provided in Section B, C, D and E. You must attempt only one of the choices in such questions.
5. Draw neat diagrams wherever necessary.

### SECTION A

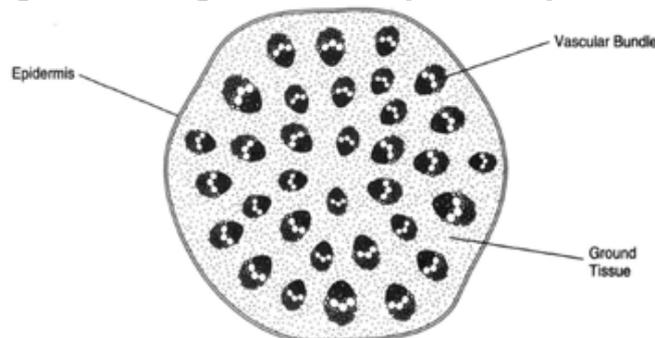
1. The term phylum was coined by \_\_\_\_\_. (1)  
(A) Linnaeus (B) Robert Hooke (C) Haeckel (D) Theophrastus
2. Biosystematics aims at the classification of organisms based on \_\_\_\_\_. (1)  
(A) broad morphological characters  
(B) cytological characteristics  
(C) evolutionary history and establishing their phylogeny on the totality  
(D) Delimiting various taxa of organisms and establishing their relationships
3. What may be a 'photosynthetic protistan' to one biologist may be an 'a plant' to another. Which of the given features of slime moulds shows a linkage with plants? (1)  
(A) Presence of holozoic nutrition (B) Presence of diverse sexual reproduction  
(C) Slime moulds have cellulosic spore wall (D) Formation of fruiting bodies
4. Choose the incorrect match: (1)  
(A) Chrysophytes — Desmids  
(B) Red dinoflagellates — *Gonyaulax*  
(C) Flagellated protozoans — *Paramecium*  
(D) Cyanobacteria — *Nostoc*
5. Gymnosperms do not produce fruits because they do not possess \_\_\_\_\_. (1)  
(A) embryo (B) ovary (C) ovule (D) seeds
6. People recovering from long illness are often advised to include the alga *Spirulina* in their diet because it \_\_\_\_\_. (1)  
(A) makes the food easy to digest (B) is the richest source of protein  
(C) has antibiotic properties (D) restores the intestinal microflora
7. Select the correct pair: (1)  
(A) Arthropoda - Silver fish (B) Pisces - Jelly fish  
(C) Echinodermata - Cuttle fish (D) Mollusca - Star fish

8. Rearrange the following zones as observed in the vertical section of the roots and choose the correct option: (1)
- (i) Root hair; (ii) Meristem; (iii) Root cap; (iv) Maturation; (v) Elongation
- (A) (i) ; (ii) ; (iii) ; (v) ; (iv) (B) (iii) ; (ii) ; (i) ; (iv) ; (v)  
 (C) (iii) ; (ii) ; (v) ; (i) ; (iv) (D) (ii) ; (iii) ; (i) ; (iv) ; (v)

9. The diagram represents the L.S of monocot seed. Choose the correct combination of labelling. (1)



- (A) (X) - Aleurone layer, (Z) - Scutellum, (Y) - Coleoptile, (W) - Coleorhiza  
 (B) (X) - Seed coat, (Z) - Scutellum, (Y) - Coleoptile, (W) - Coleorhiza  
 (C) (X) - Epithelium, (Z) - Scutellum, (Y) - Coleoptile, (W) - Coleorhiza  
 (D) (X) - Endosperm, (Z) - Scutellum, (Y) - Coleoptile, (W) - Coleorhiza
10. The student has prepared the transverse section of a plant material that shows the following anatomical features as given in the figure. What will you identify it as? (1)



- (A) Monocot stem (B) Dicot root (C) Monocot root (D) Dicot stem
11. In frogs, the oxygenated blood leaves the heart through the \_\_\_\_\_. (1)
- (A) Sinus venosus (B) Coronus arteriosus  
 (C) Hepatic portal vein (D) Vena cava
12. If a hole is punched in the floor of the buccal cavity of a frog, it will not die as \_\_\_\_\_. (1)
- (A) buccal respiration does not stop (B) pulmonary respiration occurs  
 (C) it can store oxygen for future use (D) respiration other than lungs will continue

Question Nos. 13 to 16 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 and (R) is not the correct explanation of (A).  
 (C) (A) is true, but (R) is false.  
 (D) (A) is false, but (R) is true.
13. Assertion (A) : The colour of brown algae varies from olive green to brown. (1)  
 Reason (R) : In brown algae, fucoxanthin is responsible for colour variation.

14. Assertion (A) : Bract is found at the base of the flower pedicel. (1)  
Reason (R) : Flower with the bract is called ebracteate and that without bract, abracteate.
15. Assertion (A) : The ground tissue system forms the main bulk of the plant, is divided into three (1)  
zones named as cortex, pericycle and pith  
Reason (R) : In leaves, the ground tissue consists of thin-walled chloroplast containing cells  
and is called mesophyll region.
16. Assertion (A) : The indian bull frog *Rana tigrina* is cold blooded or poikilothermic animal. (1)  
Reason (R) : Frogs do not have constant body temperature, their body temperature varies  
with the temperature of the environment.

### SECTION B

17. What is the taxonomic and biological concept of “species”? (2)
18. Polluted water bodies contain plants like Nostoc and Oscillatoria. Give reasons. (2)
19. Pitcher plants are photosynthetic yet they are also called carnivorous plants. Why? (2)
20. In animal kingdom there are animals that exhibit both radial symmetry and bilateral symmetry (2)  
in their life cycle.  
(a) Write the phylum that exhibits both these symmetries in the life cycle.  
(b) What is the advantage of such feature to the animals that belong to that phylum?
21. What is cutaneous respiration? When does a frog carry out cutaneous respiration? (2)

### OR

Frogs are not seen during extreme (hot) summer and extreme cold conditions (during winter).  
Give reason.

### SECTION C

22. Cyanobacteria and heterotrophic bacteria are classified under Eubacteria, which comes under (3)  
the kingdom Monera as per the “Five Kingdom Classification” given by R.H. Whittaker.  
(a) Even though the above two bacteria are very different, is this grouping of the two types of  
bacteria in the same kingdom justified?  
(b) Write the scientific reasons to support your answer.
23. What is heterospory? Briefly comment on its significance citing two examples. (3)
24. (a) Complete the given table on comparison between the various reproductive parts of (3)  
gymnosperm with reproductive structures of angiosperms:

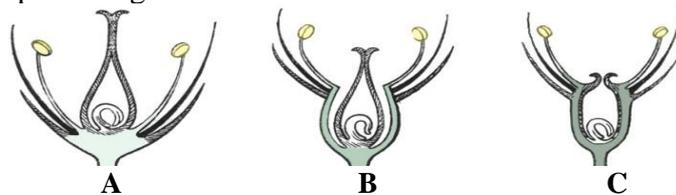
S.No	Reproductive parts of gymnosperms	Reproductive parts of Angiosperms
(i)	Strobili/cone	
(ii)	Microsporophyll	
(iii)	Megasporophyll	
(iv)	Microsporangium	

- (b) Which type of pollination is exclusively observed in gymnosperms?
25. Differentiate between the following terms: (3)  
(a) Oviparity and viviparity  
(b) Direct and indirect development in animals  
(c) Acoelomate and Pseudocoelomate

26. There has been an increase in the number of chambers in heart during evolution of vertebrates. (3)  
Give the names of the two classes of vertebrates having two, three and four-chambered heart.
27. (a) Draw a schematic sketch of a chordate showing its three major features. (3)  
(b) Write an example for each: (i) Cephalochordata (ii) Urochordata
28. (a) How is digestion aided in the stomach and intestine of frogs? (3)  
**OR**  
(b) Write any three differences between the forelimbs and hindlimbs of a frog.

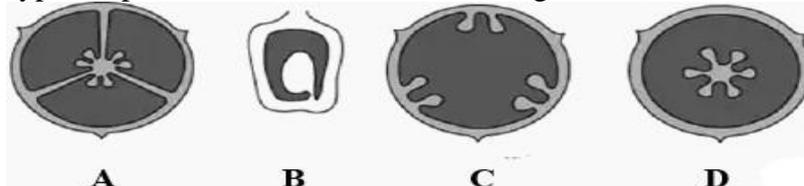
### SECTION D

29. A flower is a modified shoot wherein the shoot apical meristem changes to floral meristem. The apex produces different kinds of floral appendages laterally at successive nodes instead of leaves. When a shoot tip transforms into a flower, it is always solitary. The flower is the reproductive unit in the angiosperms. It is meant for sexual reproduction. A typical flower has four different kinds of whorls arranged successively on the swollen end of the stalk or pedicel, called thalamus or receptacle. The arrangement of flowers on the floral axis is termed as inflorescence.
- (i) Which type of the inflorescence is observed in *Caesalpinia* plant? (1)
- (ii) Name the accessory whorls that are helping in the function of reproduction. (1)
- Attempt either sub-part (iii) or (iv)
- (iii) Identify the position of the floral parts on the thalamus as shown in the diagram below. (2)  
Write an example for figure B.

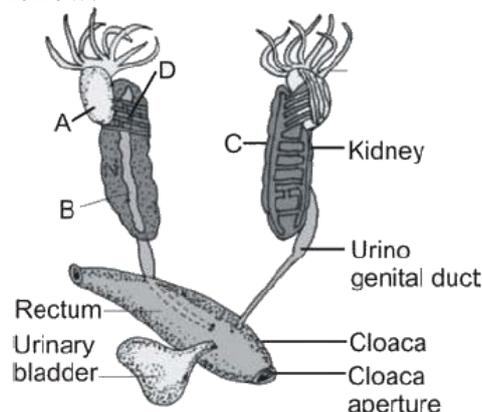


**OR**

- (iv) Identify the types of placentation as shown in the diagrams A, B, C and D. (2)



30. The diagram of the reproductive system of a male frog is shown below. Observe the diagram and answer the questions that follow:



- (i) How are the testis adhered to the upper part of kidney? (1)
- (ii) Why are the ureters in a male frog called urinogenital ducts? (1)

Attempt either sub-part (iii) or (iv)

(iii) Name the parts labelled in the figure as A, B, C and D. (2)

**OR**

(iv) Where do the vasa efferentia arise from? How many of them are there? Where do they enter further and open into? Where do the urinogenital ducts open into? (2)

**SECTION E**

31. (a) Write the life cycle pattern exhibited by all Pteridophytes. (5)

(b) Explain the life cycle of Pteridophyte starting from prothallus with an example.

**OR**

(a) Represent the life cycle of Bryophyte with the help of a simple schematic diagram.

(b) Gametophyte is a dominant phase in the life cycle of a Bryophyte. Explain.

32. List any five anatomical differences between monocot and dicot leaf. (5)

**OR**

Write any five of the anatomical differences between dicot and monocot stem.

33. The student brings the brinjal plant to study the morphological features of the family solanaceae. (5)

(a) Draw the floral diagram and write the floral formula of family Solanaceae.

(b) Describe the floral formula of family Solanaceae.

**OR**

Write one difference between the following terms:

(a) Phyllode & Phylloclade.

(b) True fruit and False fruit

(c) Actinomorphic flower and Zygomorphic flower

(d) Apocarpous ovary and Syncarpous ovary

(e) Racemose inflorescence and Cymose inflorescence