

FT-F
SUBJECT: BIOLOGY

9/2012

Time: 3 hrs.

M.M.: 70

General Instructions:

- (i) All questions are compulsory.
- (ii) This question paper consists of four sections A, B, C and D. Section –A contains 8 questions of 1 mark each, Section –B is of 10 questions of 2 marks each, Section –C is of 9 questions of 3 marks each and Section –D is of 3 questions of 5 marks each.
- (iii) There is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and two questions of 5 marks weightage. A student has to attempt only one of the alternatives in such questions.
- (iv) One 5 mark question is value based. It is a compulsory question.
- (v) Wherever necessary, the diagrams drawn should be neat and properly labeled.

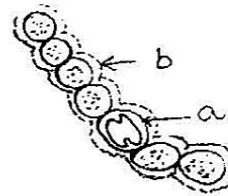
SECTION-A

- Q 1. In the five kingdom classification of Whittaker some acellular organisms are not included. What are these organisms called? (1)
- Q 2. Most of the water flow in roots occurs via apoplast pathway. Give reason. (1)
- Q 3. Name a single membrane bound cell organelle which is rich in hydrolytic enzymes. (1)
- Q 4. Opuntia does not have leaves. How does this plant carry out photosynthesis? (1)
- Q 5. What is the effect of following on the water potential inside a cell?
(a) Increased solute concentration
(b) Increased pressure (1)
- Q 6. Bryophytes are called the amphibians of the plant kingdom. Why? (1)
- Q 7. Name the chemical that constitutes the fungal cell wall. (1)
- Q 8. How is PS II supplied with electrons continuously? (1)

SECTION –B

- Q 9. A student is confused with the terms protophloem, metaphloem, primary phloem, secondary phloem. Help her by giving the correct meaning / definitions of each of these terms. (2)
- Q 10. What is Hydroponics? What is its application? (2)

- Q 11. (i) Identify the organism shown in the given figure.
(ii) Name the parts marked (a) and (b) in the figure.
(iii) What is the function of the part marked (a)?
(iv) Name the pigment present in the organism.



(2)

- Q 12. Why mitosis is called equational division? Give the significance of mitosis.

OR

What are inclusion bodies? Give two examples.

(2)

- Q 13. Differentiate between fibrous roots and adventitious roots.

(2)

- Q 14. RuBisCo is an enzyme that acts both as carboxylase and oxygenase. Why does RuBisCo carry out more carboxylation in C_4 plant?

(2)

- Q 15. Explain Heterospory in Pteridophytes. What is the evolutionary importance of Pteridophytes?

(2)

- Q 16. Sharks and rohu are both fishes yet there are many differences between them. Tabulate these differences.

(2)

- Q 17. How is a key helpful in the identification and classification of an organism?

(2)

- Q 18. With the help of an illustration, show the different types of chromosomes based on the position of centromere.

(2)

SECTION -C

- Q 19. In what form are the nutrients Potassium, Calcium and Magnesium absorbed by the plants. Mention one function each of these macronutrients.

(3)

- Q 20. Define venation. Differentiate between reticulate and parallel venation.

(3)

OR

Draw the floral diagram of solanaceae and write its floral formula

(3)

- Q 21. A cell is placed in hypertonic solution for three hours at temperature $30^{\circ}C$. It was observed that the cell membrane shrunk away from the cell wall. Explain the reason behind the above observation. Define imbibition, and give one role it plays in nature.

(3)

- Q 22. Complete the given table:

(3)

PHYLUM	SYMMETRY	COELOM	DISTINCTIVE FEATURE
A	B	C	Jointed appendage
D	E	Pseudocoelomate	F
Echinodermata	G	H	I

- Q 23. Describe the process of root nodule formation. What is the role of leg hemoglobin in nitrogen fixation?

(3)

- Q 24. Differentiate between the anatomy of a dicot stem and that of a monocot stem, with reference to

(3)

(a) Epidermis (b) Hypodermis (c) Ground tissue

- Q 25. What is meant by phycobiont & mycobiont in Lichens. Give one economic importance of Lichens

(3)

- Q 26. How does the Calvin pathway operate? What is its site?

(3)

- Q 27. Differentiate between action spectrum and absorption spectrum in photosynthesis.

(3)

SECTION –D

Q 28. Describe the detailed structure of a nucleus, with a neat labeled diagram, and give its functions.

OR

Prophase 1 of meiosis is a prolonged and extended phase. Explain the different phases of prophase 1 in a cell undergoing meiosis. (5)

Q 29. What is transpirational pull? How does it help in absorption of water by root hair?

OR

Where does noncyclic photo phosphorylation take place? Describe the process and state why it is referred to as non-cyclic. (5)

Q 30. (a) It is our duty to conserve 'Biodiversity' on Earth. All living organisms are assigned scientific names as per the principles laid by ICBN and ICZN. Expand these terms and also explain the system of Binomial Nomenclature?

(b) What is the significance of conserving Biodiversity.

©How can you contribute towards the conservation of Biodiversity? (5)