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| ROLL NO. | |
| NAME | |
| CLASS & SECTION | |

# APEEJAY COMMON ANNUAL EXAMINATION, 2018-19

02

## CLASS-XI

## BIOLOGY (044)

*Time allowed : 3 hrs.* *Maximum Marks : 70*

*General Instructions :*

*(i) There are a total of 27 questions and four sections in the question paper. All questions are compulsory.*

*(ii) Section A contains question numbers 1 to 5, Very Short answer type questions of one mark each.*

*(iii) Section B contains question numbers 6 to 12, Short Answer type I questions of two marks each.*

*(iv) Section C contains question numbers 13 to 24, Short Answer type II questions of three marks each.*

*(v) Section D contains question numbers 25 to 27, Long Answer type questions of five marks each.*

*(vi) There is no overall choice in the question paper; however, an internal choice is provided in two questions of one and two marks each, three questions of three marks and all questions of five marks. An examinee is to attempt any one of the questions out of the two given in the question paper with the same question number.*

## SECTION-A

1. What will be the axis of expansion of the thoracic chamber when external intercostal muscles and diaphragm contracts during inspiration? (1)
2. Which organ is affected when a person is suffering from jaundice and why does skin and eyes turn yellow? (1)
3. If you are given twigs of two plants how will identify a twig having simple leaf from that of a twig having compound leaves? (1)
4. What is the advantage of having more than one pigment molecules in a Photocenter? (1)

P.T.O.

**OR**

How chloroplasts are aligned in the mesophyll cells during light reaction and why do they do so?

5. Why an oxygen scavenger, leg-haemoglobin is required in the root nodules of leguminous plants?

**OR**

Why flow of water in the roots via apoplastic way beyond endodermis impossible? (1)

## SECTION-B

6. Two potted plants were kept in an oxygen free environment in transparent containers, one in total darkness and the other in sunlight. Which one of the two is likely to survive more? Justify your answer by giving the reason.

**OR**

Explain the type of photophosphorylation that occurs when light of wavelengths beyond 680 nm are available for excitation. (2)

7. How is chemical analysis of organic compounds in a living tissue carried out? (2)
8. Draw a diagram of a lenticel and label any four of its components. (2)
9. What are Cnidoblasts? Where are they present? What are they useful for? (2)

**OR**

Using a high precision microscope, how will you distinguish between a chrysophyte from a dinoflagellate ?

10. What effect will be observed in the foetus of a pregnant lady suffering from hypothyroidism? (2)
11. Explain how crossing over is initiated and completed at the end of pachytene stage. (2)
12. How are herbarium sheets prepared? What information does the label in the herbarium sheet provide for taxonomical studies? (2)

## SECTION-C

13. (a) What is compound epithelium? What are their main functions?
    (b) Where do we find areolar tissue?
    (c) How is adhering junction different from gap junction? (3)

14. If the mesophyll part of cut vertical sections of leaves belonging to C3 and C4 plant are studied what differences will be observed? State any three of them. (3)

15. (a) How many cells are required to produce 200 cells at the end of meiotic division?

(b) The number of bivalents in a cell at Prophase I stage of meiosis is 10, how many chromosomes will be present in Metaphase I, Anaphase I and anaphase II? Give reason. (3)

16. With the help of a diagram explain the structure of actin.

**OR**

Explain how joints are classified into three major structural forms. (3)

17. Explain with the help of an example, as to how the presence of certain chemicals that bind to the enzyme, shuts off enzyme activity and what are such chemicals called? (3)

18. Name the mineral that is responsible for the following :

(a) Maintenance of ribosomal structure

(b) Splitting of water to liberate oxygen during photolysis

(c) Synthesis of Auxin

(d) Germination of pollen grain

(e) Nitrogen metabolism

(f) Anion, that helps in maintenance of anion-cation balance

**OR**

Describe the following three deficiency symptoms and co-relate them with concerned mineral deficiency :

(a) Chlorosis

(b) Necrosis

(c) Stunted plant growth (3)

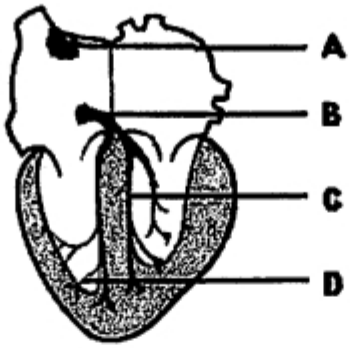
19. Define the term and explain the conditions that lead to water loss in liquid phase in plants? (3)

20. How the functioning of the kidney is efficiently monitored and regulated by JGA?

**OR**

Explain the mechanism by which human kidneys are capable to produce urine nearly four times concentrated than the initial filtrate. (3)

21. The diagram that is depicted below is the conducting system of the heart, name the parts labelled as A, B, C and D and also mention the role of A and B.




**OR**

Explain how standard ECG shown below helps in the evaluation of the heart function. (3)


22. Mention the role played by :
    (a) Long thin petiole of a leaf
    (b) Veins
    (c) Petiole of Australian acacia (3)

23. The stomatal pore is guarded by two guard cells. Name the epidermal cells surrounding the guard cells. How does a guard cell differ from an epidermal cell on the basis of shape and thickness of wall? (3)

24. (a) How Mosses along with lichens are of great ecological importance.
    (b) Apart from being commercially viable, how are Algae useful to food chain and environment? (3)

## SECTION-D

25. (a) It was found that some varieties of wheat which were sown in spring failed to flower or produce mature grain within a span of a flowering season. What could be the probable reason for this, elaborate and also name the phenomeno. (5)
    (b) Elaborate the role of phytohormones in the following :
    (i) to prepare weed-free lawns by gardeners
    (ii) to increase the length of grapes stalks
    (iii) to enable hedge-making.

**OR**

(a) Mention the two crucial events taking place in aerobic respiration. Why the role of oxygen is limited to the terminal stage of the aerobic process of respiration ?

(b) Explain how energy released during the electron transport system is utilized in synthesizing ATP with the help of ATP synthetase.

**26.** Name the parts of the alimentary canal where absorption of digested products take place in humans and give a detailed account on the various digested products that are absorbed in those parts? (5)

**OR**

(a) What are the areas of control exercised by hypothalamus and what are the other regulatory mechanisms that the hypothalamus controls in association of limbic system?

(b) How transmission of nerve impulses is different in an electrical synapse and in a chemical synapse?

**27.** (a) Explain the structure and role of the nucleolus and how chromatin material are structurally modified during different stages of cell division. Name the organelles that do not show during cell division when viewed under the microscope.

(b) What is the significance of the nuclear envelope being interrupted at various places? (5)

**OR**

(a) How are proteins classified on the basis of ease of extraction on the membrane?

(b) How are neutral solutes and polar molecules transported across the membranes?

(c) Mention the features that are common in Chloroplasts, Mitochondria and prokaryotic cells.

**BEST OF LUCK!**