

Roll No. _____

Code : 112021 B–A

Please check that this question paper contains 33 questions and 8 printed pages.

CLASS–XI
BIOLOGY (044)
ANNUAL EXAM (2020-21)

Time allowed : 3 hours

Maximum Marks : 70

General Instructions :

- (i) All questions are compulsory.
 - (ii) The question paper has four sections : Section A, Section B, Section C and Section D. There are 33 questions in the question paper.
 - (iii) Section A has 14 questions of 1 mark each and 2 case-based questions. Section-B has 9 questions of 2 marks each. Section-C has 5 questions of 3 marks each and Section-D has 3 questions of 5 marks each.
 - (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 labelled diagrams should be drawn.
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Section-A

- | | |
|---|---|
| 1. Name 2 parts in human body where ciliated epithelium is present. | 1 |
| 2. Why is the body of Euglenoids, flexible ? | 1 |
| 3. What are Telocentric chromosomes ? | 1 |
| 4. What do you mean by Metagenesis ? | 1 |
| 5. What is Staminode ? | 1 |
| 6. What do you mean by Acropetal succession ? | 1 |
| 7. How is Limbic system formed ? | 1 |

8. Name the stage in Cell Cycle where— 1
(a) Crossing over of non-sister chromatids of homologous chromosomes takes place.
(b) Chromosomes come to lie at equatorial plate.
9. What name is given to the disorder in which the alveolar walls are permanently damaged ? Why is it caused ? 1
10. What are the 2 important functions of corticoids in our body ? 1
11. **Assertion :** Secondary metabolites are produced in small quantities and their extraction from the plant is difficult and expensive. 1
Reason : Secondary metabolites can be commercially produced by using tissue culture technique.
(a) If both Assertion (A) and Reason (R) are true and R is correct explanation of A.
(b) If both A and R are true but R is not the correct explanation of A.
(c) If A is true but R is false.
(d) If both A and R are false.

OR

- Assertion :** Plant growth regulators are very important for plant growth and development.
Reason : Auxins do not induce flowering in gymnosperms.
(a) If both Assertion (A) and Reason (R) are true and R is correct explanation of A.
(b) If both A and R are true but R is not correct explanation of A.
(c) If A is true but R is false.
(d) If both A and R are false.
12. **Assertion :** Mitochondria and Chloroplast have their own genomes. 1
Reason : Endoplasmic Reticulum and Golgi Body work according to their genomes.
(a) If both Assertion (A) and Reason (R) are true and R is correct explanation of A.
(b) If both A and R are true but R is not correct explanation of A.
(c) If A is true but R is false.
(d) If both A and R are false.

13. **Assertion :** Platelets play an important role in blood clotting. 1

Reason : If the blood is oozing out from an injury, the platelets disintegrate and release thromboplastin that initiates clotting.

- (a) If both Assertion (A) and Reason (R) are true and R is correct explanation of A.
- (b) If both A and R are true but R is not correct explanation of A.
- (c) If A is true but R is false.
- (d) If both A and R are false.

14. **Assertion :** Fermentation is incomplete oxidation of glucose. 1

Reason : Pyruvic acid decarboxylase and alcohol dehydrogenase catalyse the reactions.

- (a) If both Assertion (A) and Reason (R) are true and R is correct explanation of A.
- (b) If both A and R are true but R is not correct explanation of A.
- (c) If A is true but R is false.
- (d) If both A and R are false.

15. Read the following text and answer any four questions from 15 (i) to 15 (v) given below : 4

Kidney problems are increasing day by day. More and more people are having increased levels of toxins like creatinine, glucose, ketone bodies, protein bodies, uric acid in their blood. This is due to wrong food habits and intake of fast foods. When kidney does not work properly, it may be that some nephrons which filter the blood are damaged. Although nephrons get replenished in some time but if the number of nephrons which got damaged are beyond repair then the patients have to depend on artificial methods for cleaning of blood and getting rid of these toxins. One of the methods provide permanent cure while for other method, patient has to get admitted in hospital periodically.

- (i) Substances which are harmful for the body are–
- (a) Water and amino acids (b) Na^+ and K^+ ions
(c) Creatinine (d) None of above
- (ii) The permanent way to make the kidney function properly is–
- (a) Transplantation
(b) Dialysis
(c) Taking medicines like diuretics
(d) None of above
- (iii) The artificial method of cleaning blood via kidney is –
- (a) Haemodialysis (b) Filtration
(c) Reabsorption (d) Secretion of wastes
- (iv) The disease caused by inflammation of glomeruli of Nephrons is –
- (a) Renal calculi (b) Glycosuria
(c) Ketonuria (d) Glomerulonephritis
- (v) **Assertion** : Nephrons are the filtering units of kidney.

Reason : All the functions of kidney are basically performed by nephrons.

- (a) If both Assertion (A) and Reason (R) are true and R is correct explanation of A.
- (b) If both A and R are true but R is not correct explanation of A.
- (c) If A is true but R is false.
- (d) If both A and R are false.

16. Read the following text and answer any four questions from 16 (i) to 16 (v) given below : 4

Although Bryophytes are called Amphibians of plant kingdom, yet first land plants are Pteridophytes as they have true roots, stem and leaves. They are more advanced than bryophytes in having sporophytic plant body whereas bryophytes are having gametophytic body. Sporangia in pteriophytes produce haploid spores which germinate into gametophytic prothallus, this bears haploid Antheridia and Archegonia which fertilize to produce diploid zygote. Development of Zygote into embryo inside archegonium is an advanced feature of pteridophytes.

- (i) Vascular bundles are present in –
- (a) Thallophytes
 - (b) Bryophytes
 - (c) Pteridophytes
 - (d) None of above
- (ii) The group of plants which are known as Plant Amphibians are –
- (a) Bryophytes
 - (b) Pteridophytes
 - (c) Gymnosperms
 - (d) Angiosperms
- (iii) Development of seed in Archegonium in Pteridophytes is –
- (a) Ensures seed development
 - (b) Precursor of seed habit
 - (c) Better development of thallus
 - (d) Better sporangia formation

(iv) Plant body of Pteridophytes is –

- (a) Gametophytic (b) Sporophytic
(c) Haploid (d) None of above

(v) **Assertion** : Bryophytes play an important role in plant succession on bare rock.

Reason : Bryophytes are found in dry shady areas.

- (a) If both Assertion (A) and Reason (R) are true and R is correct explanation of A.
(b) If both A and R are true but R is not correct explanation of A.
(c) If A is true but R is false.
(d) If both A and R are false.

Section-B

17. Why is human heart known as myogenic ? How the wave of contraction originates and transmits through heart ? 2
18. What is Metameric Segmentation ? Name the Phylum in which this segmentation is found. 2

OR

Name the Organ of Excretion in the Phylum–

- (a) Platyhelminthes (b) Annelida
(c) Arthropoda (d) Hemichordates

19. Differentiate between : 2
- (a) Saturated and Unsaturated Fats
(b) Essential and Non-Essential Amino-Acids

20. Name the Hormone responsible for – 2
- (a) Reducing Glucose level
 - (b) Uterine contractions at the time of Child birth
 - (c) Controls function of Stomach
 - (d) Maintains Sodium and Water level
21. What do you mean by Binomial Nomenclature ? Name the biologist who gave this nomenclature. 2
22. Mention the two steps of Glycolysis in which ATP is released. 2
23. Explain why is Photorespiration considered as a wasteful process ? Why C4 plants are considered to have better productivity ? 2
24. What do you understand by Hypogynous and Epigynous flower ? 2
25. A fruit vendor applies a chemical on raw bananas and gets it ripe in few hours. Name the chemical used by him and also mention the phytohormone responsible for the ripening of bananas. Write the importance of this hormone for plants. (Any 2 points) 2

Section-C

26. Describe the structure of a Cilium as seen under the electron microscope with labelled diagram. 3
27. What is Oxidative Phosphorylation ? How is ATP synthesized in Inner Mitochondrial membrane in plants by F_0-F_1 particles ? 3
28. What is Activation Energy ? Explain with graph how do enzymes bring about a change in rate of chemical conversion. 3
29. Interphase is the longest phase in the cell cycle, mention all the 3 sub-phases of this phase and changes that occur in the cell during these sub-phases. 3

30. Write a short note on Dense Connective Tissue. 3

OR

Draw a diagram of Human Respiratory System and label its Trachea, Bronchus, Bronchioles, Pleural Membrane and Diaphragm.

Section-D

31. (a) Explain the 4 classes of Fungi on the basis of mode of reproduction. 5
(b) What is Diplontic pattern of life cycle.

OR

- (a) Compare the 3 classes of Algae – Chlorophyceae, Pheophyceae, Rhodophyceae on the basis of pigment and stored food present in them.
(b) Explain the structure of Tobacco Mosaic Virus with diagram.
32. Explain the mechanism of muscle contraction, giving structure of contractile proteins. 5

OR

Explain the process of Generation and Conduction of Nerve impulse.

33. Explain the process of Cyclic Photophosphorylation in green plants. How is it different from Non-cyclic Photophosphorylation ? 5

OR

- (a) Explain Calvin cycle.
(b) How many molecules of ATP and NADPH are required for every molecule of carbon di-oxide that enters Calvin cycle.

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