

Total number of printed pages-5

32 Bio (T) 18/Im25

2025

BIOLOGY

Full Marks: 70

Pass Marks: 21

Time: Three hours

All the questions are compulsory.

The figures in the right margin indicate full marks for the questions.

For Question Nos. 1 to 7, select most appropriate one from the given alternatives A, B, C and D and rewrite the same.

1. Which of the following nitrogenous base is found only in RNA ? 1
A. Adenine B. Uracil
C. Cytosine D. Thymine
2. Cocaine act as 1
A. Depressants B. Stimulants
C. Pain killer D. Euphoria providers
3. Restriction enzymes are those enzymes which can 1
A. Carry different DNA-fragments.
B. Join different nucleotides to form DNA
C. Cut DNA at specific nucleotide points
D. Synthesize a large number of nucleotides.

P.T.O.

4. Which of the following wall layers of microsporangium nourishes the developing pollen grains ? 1
 A. Epidermis. B. Endodermis.
 C. Middle layers D. Tapetum
5. Sewage treatment where decomposer bacteria are recycled into starting process is 1
 A. Primary treatment B. Cyclic treatment
 C. Tertiary treatment D. Activated sludge treatment
6. Suggest a technique to a researcher who needs to separate fragments of DNA. 1
 A. Microinjection B. Biolistic
 C. Gel-electrophoresis D. Bioreactor
7. Which ecological pyramid can never occur in an inverted form ? 1
 A. Pyramid of Energy B. Pyramid of Biomass
 C. Pyramid of Number D. Pyramid of Cytoplasm

Question Nos. 8 to 17 are very short answer type questions carrying 1 mark each.

8. What is amniocentesis ? 1
9. What is multiple allele ? 1
10. Indicate the importance of breast feeding during the initial period of infant growth. 1
11. How long the pollen grain of rice can be viable after they are released from pollen sac ? 1
12. Why are some molecules called bioactive molecules ? 1
13. Cite one probable result when an alien gene is ligated at *Bam*H1 site of *pBR322* plasmid. 1
14. Why do periodic treatments are required to those children who are cured by enzyme replacement therapy for ABA deficiency ? 1

15. Sacred groves are highly protected, why ? 1
16. 'The first human-like being the hominid probably did not eat meat' .
Predict the name of the hominid. 1
17. Bottled fruit juices brought from the market are cleaner as compared
to those made at home. Analyse. 1

Question Nos. 18 to 27 are short answer type II questions carrying 2 marks each.

18. Write two characteristic features of Malignant tumors. 2
19. What is biopiracy ? State the initiative taken up by the Indian Government
to protect biopiracy. 2
20. Write two important roles of predation. 2
21. Differentiate between divergent and convergent evolution by giving one
example each. 2
22. How are transgenic animals used for study of disease ? 2
23. How do genetic diversity differ from species diversity ? List two points. 2
24. "One could be free from STIs by following some simple practices".
Analyse the statement by giving two practices. 2
25. Illustrate two characteristic features of tRNA. 2
26. In a biogas plant, a slurry made by mixing cow dung and water is fed
for digestion by microbes. Suggest why no inoculum is added to the
slurry ? Under which condition will they be most active and effective ? 2
27. In the bacterial body, Bt-toxin is released as inactive crystals, but it
kills the cotton bollworm after consumption. Analyse. 2

Question Nos. 28 to 33 are short answer type I questions carrying 3 marks each.

28. Write three characteristic features of Haemophilia. 3

Or

List three characters of Klinefelter's syndrome.

29. Explain three salient features of genetic code. 3

Or

Demonstrate in three points that a molecule can act as genetic materials.

30. Indicate three importance of lactic acid bacteria. 3

Or

Illustrate the mode of transmission of HIV by giving three points.

31. "Mycorrhizal association helps in improving the quality of plant". Interpret the statement by giving three points. 3

Or

A patient shows sign of sustained high temperature, stomach pain, constipation, headache and loss of appetite.

Predict the name of the disease and mention its pathogen along with mode of transmission.

32. Some organisms can live inside the internal organs of another organism, suggest this type of interaction and give characteristic of it. 3

Or

The Mediterranean orchid *Ophrys* employs 'sexual deceit' to get pollination done by a species of bee.

Interpret this statement by giving three points.

33. Draw a neat diagram of a L. S. of an embryo of grass and label shoot apex and coleorhiza. 3

Or

Draw a diagrammatic representation of a human sperm cell and label Acrosome and Middle piece.

Question Nos. 34 to 36 are Essay type questions carrying 5 marks each.

34. Explain five barrier methods of birth control in human. 5

Or

Illustrate the advantages of seed formation in angiosperms.

35. How *ex-situ* conservation helps for the conservation of biodiversity? 5

Or

‘No population of any species in nature has the disposal of unlimited resources to permit exponential growth’. Explain it in five points.

36. Interpret the five factors which affect Hardy-Weinberg equilibrium. 5

Or

Analyse the packaging of DNA in eukaryotes by giving five points.
