

2019
BIOLOGY
(Theory)

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 4 select most appropriate one from the given alternatives A, B, C and D and rewrite the same.

1. Parthenogenesis is the development of 1
 - A. Fruit without fertilization
 - B. Embryo from egg without fertilization
 - C. Fruit with a hormone treatment without fertilization
 - D. Embryo from synergid without fertilization.

2. The nonsense codon also called 'opal' is 1
 - A. AUG
 - B. UAG
 - C. UGA
 - D. UAA.

P.T.O.

3. Ecological niche refers to 1
- A. Habitat
- B. Microhabitat
- C. Habitat and its relationship
- D. Habitat and Climate.
4. A marriage between normal vision man and colourblind woman will produce 1
- A. normal sons and carrier daughters
- B. colourblind sons and carrier daughters
- C. colourblind sons and 50% carrier daughters
- D. 50% colourblind sons and 50% carrier daughters.

Question Nos. 5 to 14 are very short answer type questions carrying 1 mark each.

5. Define phermones. 1
6. What is the function of trophoblast in human embryo ? 1
7. What is criss-cross inheritance ? 1
8. State the function of cell mediated immune response. 1
9. Name the chemical released by leucocytes in order to increase the body temperature. 1
10. Define eutrophication. 1
11. Why do we add starter to milk ? 1
12. Why is Sewage water treated until the BOD is reduced? Give one point. 1
13. Which component of sunlight causes snow blindness ? 1
14. Why is ozone formed in lower atmosphere called bad ozone ? 1

Question Nos. 15 to 24 are short answer type -II questions carrying 2 marks each.

15. Mention two conditions in which medical termination of pregnancy is advised. 2
16. What is test cross? Give its utility? 2
17. What is deficiency diseases? Give one example. 2
18. Differentiate between albuminous and non-albuminous seeds by giving two points. 2
19. Differentiate between Active and Passive immunity by giving two points. 2
20. Explain the Palindromic nucleotide sequences in DNA. Give one example. 2
21. "Convergent evolution leads to analogous structures". Comment on the statement by giving two points. 2
22. "The use of GM crops leads to the development of certain problems". Analyse the statement with two suitable reasons. 2
23. Draw a neat diagram of a mature embryo sac of an angiosperm and label antipodals and polar nuclei. 2
24. Draw a neat diagram representing an Age Pyramid with a declining population and label pre-reproductive and post-reproductive group. 2

Question Nos. 25 to 31 are short answer type-I questions carrying 3 marks each.

25. List three characters to show that DNA is a better genetic material than RNA. 3
26. What is drug addiction? Name two warning signs of drug abuse. 3
27. Explain the salient features of unambiguous, universal and degenerate nature of genetic code. 3
28. Why is cultivation of lac faces tremendous challenges by the farmers? Give three points. 3

29. Explain the three steps involved in polymerase chain reaction. 3
30. "Biotechnology is a boon to medical science." Analyse the statement with three points. 3
31. Justify the importance of decomposer in the ecosystem by giving three points. 3

Question Nos. 32 to 34 are essay type questions carrying 5 marks each.

32. Give five methods of assisted reproductive technology to help infertile childless couple to have a child. 5
33. Explain the five factors which are known to affect Hardy-Weinberg equilibrium. 5
34. (a) Why should we conserve biodiversity? Illustrate giving three points. 3
- (b) Explain any two ways that are responsible for the loss of biodiversity. 2