

CLASS - XII
BIOLOGY
PRACTICE PAPER -1

General instructions:

Read the following instructions very carefully and strictly follow them:

- i) Question paper comprises five sections: A, B, C, D, E
- ii) There are 27 questions in the question paper. All the questions are compulsory.
- iii) Section A-Questions 1 to 5 are multiple choice questions carrying 1 mark each.
- iv) Section B-Questions 6 to 12 are short answer questions type I, carrying 2 mark each.
- v) Section C-Questions 13 to 21 are short answer questions type II, carrying 3 mark each.
- vi) Section D-Questions 22 to 24 are short answer questions type III, carrying 3 mark each.
- vii) Section E – Questions 25 to 27 are long answer questions, carrying 5 mark each.
- viii) Answer should be brief and to the point.
- ix) There is no overall choice in the question paper. However, an internal choice has been provided in two questions of 1 mark, one question of 2 mark, two questions of 3 mark and three questions of 5 marks. Only one of the choices in such questions are to be attempted.
- x) The diagram drawn should be neat, proportionate and properly labelled, where ever necessary.
- xi) In addition to this, separate instructions are given with each section and question, where ever necessary.

SECTION - A

1. The diagnostic test that confirms typhoid in humans is: 1
 - a) MRI
 - b) ELISA
 - c) WIDAL
 - d) Amniocentesis
2. Which of the following is not the product of transgenic experiments:
 - a) Pest resistant crop variety
 - b) Draught resistant crops
 - c) Humulin production by rDNA technology
 - d) High nutritional value in grains 1
3. The theory of origin of life supported by the experiment conducted by Louis Pasteur is:
 - a) Omnis-cellulae cellula
 - b) Spontaneous generation theory
 - c) Big bang-Theory of massive explosion
 - d) Theory of Abiogenesis of life
4. The bioactive molecule used as immune-suppressant agent during organ transplant is:
 - a) Streptomycin
 - b) Tetracycline
 - c) Cyclosporin-A
 - d) Statin

OR

Blue revolution refers to:

- a) Storage of water in dams for conservation and power generation

- b) Scientific method of fish farming and aquaculture
 - c) Manage eutrophication to make the water pure and blue again
 - d) Sewage treatment to make the water pure and blue again
5. Evolutionary tree has branched and re-branched 'n' number of times producing countless varieties of organisms:
- a) Identify any two marsupials out of the following:
 - i) Lemur
 - ii) Spotted cuscus
 - iii) Flying phalanger
 - iv) Bobcat
 - v) Tasmanian wolf
 - vi) Mole
 - b) 'Australian marsupials exhibit adaptive radiation'. Justify the statement.

SECTION - B

6. Write the ploidy and number of chromosomes in human meiocyte and gametes. 2
7. State the functional difference between the following codons: 2
- a) AUG and UAA
 - b) Specific and Degenerate
8. The phenomenon of loss or gain of chromosomes may be a rare occurrence but it definitely effects population. Define the phenomenon involved? Name a chromosomal disorder in human female caused due to:
- a) Gain of an autosome
 - b) Loss of a sex chromosome 2
9. Name the type of immunity that the mother provides the newborn baby. How does it happens? 2
10. Name the two primary lymphoid organs. State the importance of T-Lymphocytes. 2
11. How are malignant tumors different from benign tumors? Why are some patients treated with α -interferons?

OR

Name the hormone with which a cow is administered embryo using MOET technology. State the function of the hormone.

12. How is the normal human body temperature of 37⁰C maintained during: 2
- a) Summers
 - b) Winters

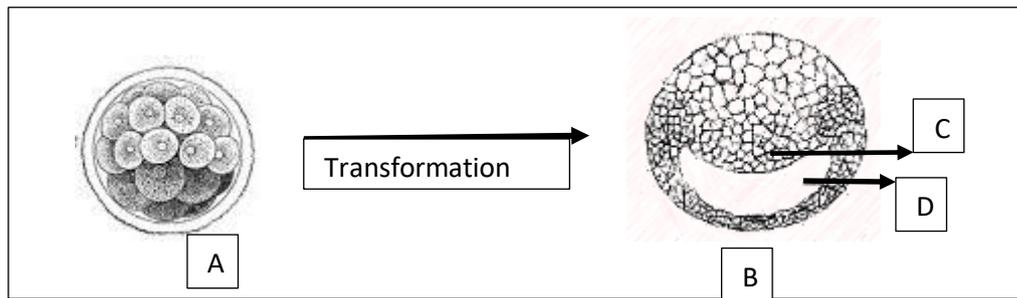
Explain the situation.

SECTION - C

13. Draw a longitudinal section of the pistil from a flowering plant, where pollination has occurred. Label the following: 3
- a) Stigma showing germinating pollen grains
 - b) Style
 - c) Pollen tube reaching the micropyle of the ovule
 - d) Embryo sac
 - e) Components of the egg apparatus

14. Study the given diagram:

3



A is an embryonic stage that gets transferred into B, which in turn gets implanted in the endometrium in human females

- Identify A, B and its parts C and D.
- State the fate of C and D in the course of embryonic development in humans.

OR

15. Differentiate between pattern of inheritance in humans of the blood diseases – haemophilia and thalassaemia. 3

16. Explain

- Compare the mechanism of sex determination in humans with that of honey bees with respect to the chromosome number. 3
- How is the gamete formation comparable in the above two cases?

17. Differentiate between Dominance, Incomplete dominance and Co-dominance with the help of a suitable example of each.

18. Mention the chemical nature of an antibody and name the type of cells they are produced by. Write the differences between active and passive immune responses on the basis of antibodies. 3

OR

Name the cell that acts as HIV factory in humans when infected by HIV. Explain the events that occur in these infected cells.

19. When *Bacillus thuringiensis* enters a certain insect's body, the insect gets killed, but itself remains unaffected. Explain how it is possible.

20. Evolution is commonly seen in all the organisms.

- What type of adaptations do tapeworm have for successful parasitism and to co-exist with its host in the ecosystem.
- Parasites are host specific and tend to co-evolve. How would the parasite respond if the host evolves a certain mechanism to resist or reject the parasite?

OR

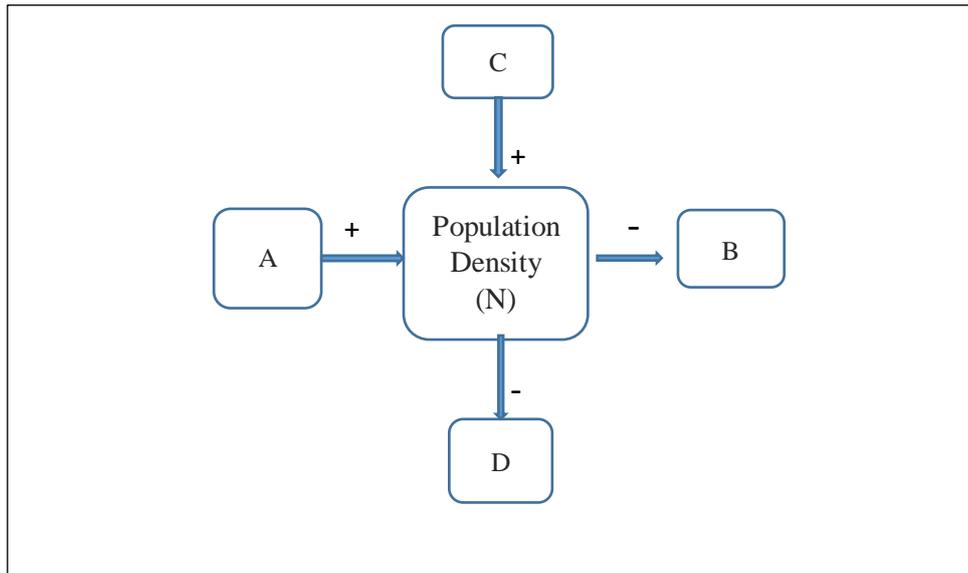
- Name the ideal pyramid existing in an ecosystem. Construct it up to its three trophic levels along with their names.
- The sun provides 1,000,000 J of sunlight (solar energy) to an ecosystem. Write the amount of energy that is available to the first and third trophic levels, respectively.

21. Global carbon is fixed in the biosphere through photosynthesis. 3

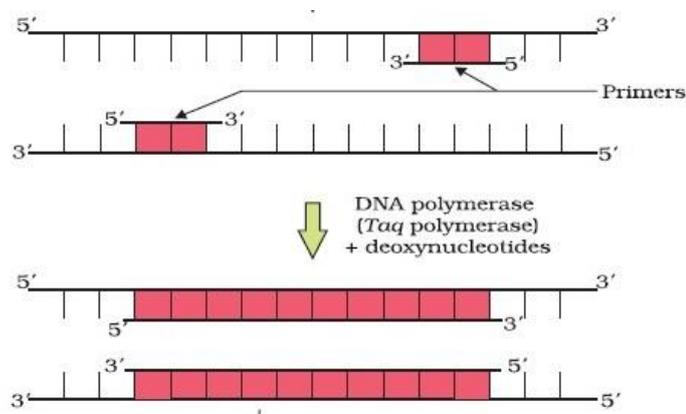
- Explain any two ways by which carbon is returned to the atmosphere through natural process.
- List any two human activities that have influenced the carbon cycle in nature?

SECTION - D

22. Study the schematic diagram and answer the following questions. (A & D corresponds to very young age group).

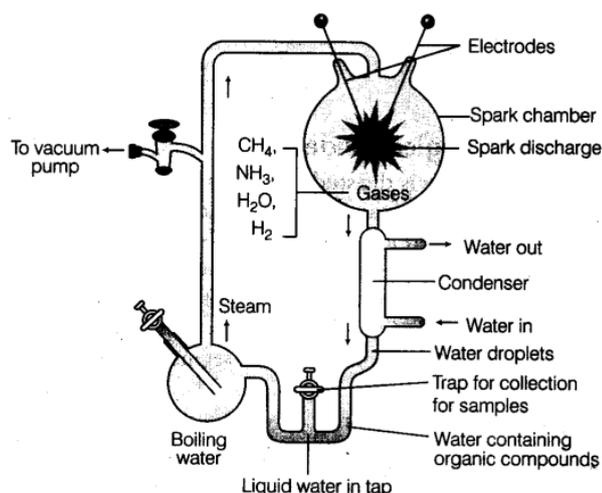


- Identify A in it.
 - Identify D in it.
 - When the population density at time 't' is 'N' as shown above, write the population density at time 't + 1' in the form of an equation.
23. Given below is the diagram representing the multiplication of DNA artificially in a laboratory. Observe the illustrations and answer the questions that follow:



- Identify steps A and B in a cycle of Polymerase Chain Reaction given above.
- State the characteristic features of enzyme in carrying out step B.

24. Study the diagrammatic representation of S. L. Miller experiment given below and answer the questions that follow:



- How did S. L. Miller create the conditions which existed before the origin of any life on Earth?
- Name the organic compound formed and collected at the end of his experiment?
- Mention the kind of evolution that his experiment supports.

SECTION - E

25. Attempt any one among the option given below. 5

- Draw the sectional view of a seminiferous tubule of human. Label any six parts.
- Name the pituitary hormone involved in the process of spermatogenesis. State their functions.

OR

- IUD's are said to be effective contraceptive. Name any two commonly used IUD's and write the mode of their action.
- When is sterilization advised to married couples? How is it carried out in a human male and a female, respectively.

26. Explain the expression of lac operon genes in *E. coli* growing in lactose containing culture medium. 5

OR

Name the type of cells and the process by which hnRNA is formed. Describe the processing mechanism it undergoes before it becomes functional?

27. There is a great concern all over the world to conserve biodiversity for maintaining ecological balance in the nature. Explain giving three reasons. Write different ways that have helped in increasing tiger population in our country. 5

OR

What is integrated organic farming? How did Ramesh Chandra Dagar, a farmer from Sonapat, Haryana effectively use this procedure and succeed with zero wastes?
