QUESTION PAPER

BIOLOGY CODE- 865

CLASS – XII

MAX MARKS 70 **TIME ALLOWED 3 Hrs**

GENERAL INSTRTUCTIONS:

1. All questions are compulsory.

2. The question paper has five sections and 35 questions.

3. Section A has 18 questions of mark 1 each; Section B has 7 questions of 2 mark each; Section C has 5 questions of 3 marks each; Section D has 2 case-based questions of 4 marks each; Section E has 3 questions of 5 marks each.

4. 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.

5. Where ever necessary, neat and properly labelled diagrams should be drawn.

SECTION A

1. The Pistils more than one when fused together are knowns as:
   a) Monocarpellary
   b) Syncarpous
   c) Apocarpous
   d) None of the above

2. The number of primary follicles left in each ovary at puberty are:
   a) 20,000-40,000
   b) 40,000-60,000
   c) 60,000-80,000
   d) 80,000-100,000

3. In ZIFT (Zygote Intra Fallopian Transfer) the zygote or early embryos could be transferred into the fallopian tube with up to……blastomeres.

4. Sickle-cell anaemia is a …… trait

5. Triplet codon AUG performs dual functions:
   a) AUG codes for Methionine, and it also acts as initiator codon.
   b) AUG codes for Phenylalanine, and it also acts as initiator codon.
   c) AUG codes for Methionine, and it also acts as terminator codon.
   d) AUG codes for Phenylalanine, and it also acts as terminator codon.

6. Write the name of ship on which Charles Darwin went for sea voyage.

7. In RNA uracil is found in place of:
a) Cytosine
b) Guanine
c) Adenine
d) Thymine

8. The number of peptide chains found in protein antibodies produced by B-lymphocytes is……

9. Name the widely used diagnostic test for AIDS.

10. The application of statins produced by yeast *Monascus purpureus* is:
   a) As a clot buster from blood vessels.
   b) As a blood cholesterol lowering agent.
   c) As an immunosuppressive agent.
   d) For removing oily stains.

11. Who created first recombinant DNA:
   a) Stanley Cohen
   b) Herbert Boyer
   c) Stanley Cohen and Herbert Boyer
   d) None of the above.

12. The toxic insecticide produced by some strains of *Bacillus thuringiensis* harming lepidopterans and dipterans is chemically a:
   a) Carbohydrate
   b) Protein
   c) Lipid
   d) Fatty acid

13. In a pond there were 20 lotus plants last year and through reproduction 8 new plants are added, increasing the current population to 28. The calculated birth rate of offsprings will be:
    a) 0.2
    b) 0.4
    c) 0.8
    d) 0.16

14. Net primary productivity is:
    a) Gross primary productivity minus respiration losses
    b) Gross primary productivity plus respiration losses
    c) Gross Secondary productivity minus respiration losses
    d) Gross Secondary productivity plus respiration losses

15. What is the name of the specific place occupied by the organisms in the food chain on the basis of their nutrition source?

Assertion Reason based questions:

Answer these questions by choosing right option.

(a) Both A and R are true an R is right explanation of A.

(b) Both A and R are true an R is not right explanation of A.

(c) A is true and R is false.

(d) A is false and R is true.

16. Assertion A: Grasshopper is an example of XO type of sex determination.

    Reason R: In grasshoppers besides autosomes males have only one X chromosome whereas females have a pair of X chromosomes.

17. Assertion A: Genetic code is degenerate.
    Reason R: Some amino acids are coded by more than one codon.

18. Assertion A: In earth's biodiversity animals constitute 70 percent of all the species recorded.
    Reason R: Number of fungi species is less than the combined total species of fishes, amphibians, reptiles and mammals.

Section- B

19. Point out two main events in double fertilization of flowering plants.

20. Write two important steps to bring down the population growth rate.

21. Name the cross which is conducted between two pea plants bearing contrasting traits of height, resulting in 50 percent of parental characteristics. Why do the geneticists work out this cross?

22. What was proposed by Oparin and Haldane on evolution?

23. Name the parasite which causes ascariasis? State any two symptoms of ascariasis.

    Or

    What is interferon? What is it's role in immunity?

24. What are molecular scissors? Point out the role of molecular scissors in recombinant DNA technology.

    Or

    What is gel electrophoresis? What is the need to stain DNA? Name the compound used to stain DNA in gel electrophoresis.

25. "Pyramid of energy is always upright"- Critically analyse the statement.

    Or

The egrets come in close association with grazing cattle. Name this type of interaction between egrets and grazing cattle. Mention the reason for such close interaction.

Section-C

26. Draw a well labelled diagrammatic sectional view of seminiferous tubule in human.
27. Point out the salient features of double helical structure of DNA.

28. In the given table are shown three genetic disorders with their cause and symptoms. Match each genetic disorder with accurate cause and symptoms:

Sr. No	Name of genetic disorder	Reasons	Symptoms
1.	Klinefelter's syndrome	Trisomy 21	Sterile female with rudimentary ovary
2.	Down's syndrome	Absence of one of the X chromosomes	Overall masculine development with Gynaecomastia
3	Turner's syndrome	An additional copy of X chromosome resulting into a karyotype of 47, XXY	Small rounded head, furrowed tongue, partially open mouth, palm broad with characteristic crease.

Or

In process of Eukaryotic transcription describe following points:

(a) Function of RNA Polymerase I, RNA Polymerase II and RNA Polymerase III

(b) Gene Splicing

29. Explain, why secondary treatment of the sewage is known as biological treatment?

Or

Cancer is one of the most dreaded diseases of human beings and is major cause of death across the globe. In reference to cancer describe following points:

(i) What is contact inhibition?

(ii) What is malignant tumour?

(iii) What are carcinogens?

30. What is GMO? List out two advantages of genetic modifications in plants.

Section-D

31. Case Based Question 1:

A wide range of organisms belonging to bacteria, viruses, fungi, protozoans, helminths, etc., could cause diseases in man. Such diseasecausing organisms are called pathogens. Most parasites are therefore pathogens as they cause harm to the host by living in (or on) them. The pathogens can enter our body by various means, multiply and interfere with normal vital activities, resulting in morphological and functional damage. Pathogens have to adapt to life within the environment of the host.

a) Mention the group of viruses which causes common cold in human beings. 1
b) Point out the name of causative organism of malaria. 1
c) Name the disease caused by *Entamoeba histolytica.* and list out three symptoms of the disease. 2

Or

Name the pathogenic bacterium which causes typhoid in human beings. Name the test which could confirm typhoid fever. 2

32. Case Based Question 2:

Faced with the conflict between development and conservation, many nations find it unrealistic and economically not feasible to conserve all their biological wealth. Invariably, the number of species waiting to be saved from extinction far exceeds the conservation resources available. On a global basis, this problem has been addressed by eminent conservationists. They identified for maximum protection certain 'biodiversity hotspots' regions with very high levels of species richness and high degree of endemism (that is, species confined to that region and not found anywhere else). Initially 25 biodiversity hotspots were identified but subsequently nine more have been added to the list, bringing the total number of biodiversity hotspots in the world to 34.

a) What is meant by *In situ* conservation? Give an example. 1

b) Name the place and country where the world summit on sustainable development was held in 2002. 1

c) List out four major causes (the Evil Quartet) of biodiversity losses. 2

Or

Describe the broadly utilitarian argument to conserve biodiversity with the help of one example. 2

Section- E

33. Study the flow chart given below, and name the hormones acting on each stage with their functions:

Hypothalamus→ Anterior Pituitary→ Leydig cell→ Spermatogenesis

Or

Draw a well labelled diagrammatic view of a typical anatropous ovule.

34. What is meant by transcription? Explain, the process of transcription in Bacteria.

Or

Describe the following points in experiment conducted by Hershey and Chase:

(i) What was the aim of experiment?
(ii) Name of the virus on which they carried out experiment.
(iii) Main steps in process of experiment.
(iv) Conclusion drawn by them after experiment.

35. In reference to PCR answer the following questions:

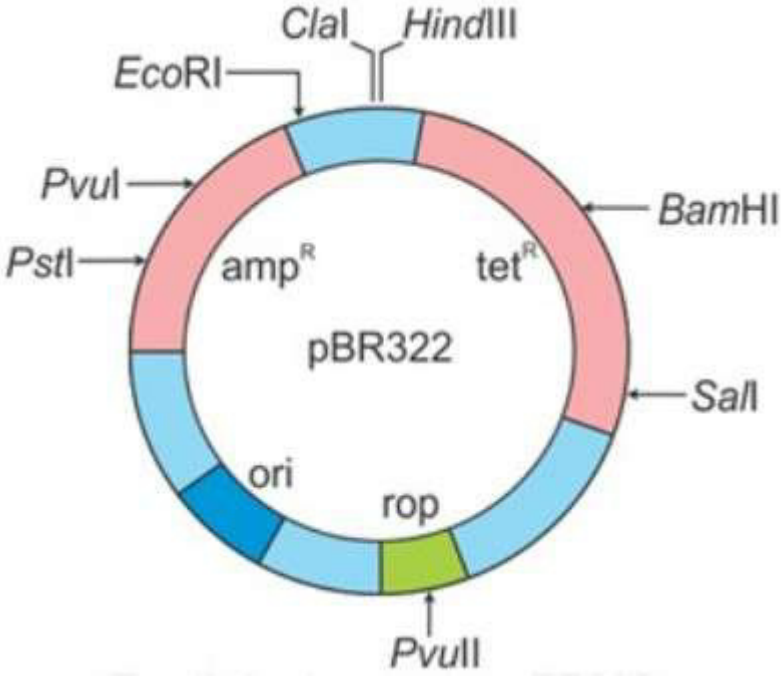
(i) What is expanded form of PCR?
(ii) How many steps are involved in one cycle of PCR? Name these steps.
(iii) What is the role played by *Thermus aquaticus* bacterium in PCR?

Or

Describe following features that are required to facilitate cloning in a vector:

- Origin of Replication (ori)
- Recognition sites
- Selectable marker

Recognise and list out the selectable markers in the diagram of *E. Coli cloning* vector pBR322 given below:



Diagrammatic representation of *E. coli* cloning vector pBR322

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