



S.R. Study Material

S R SAMPLE PAPER 2

Class 12 - Biology

Time Allowed: 3 hours

Maximum Marks: 70

General Instructions:

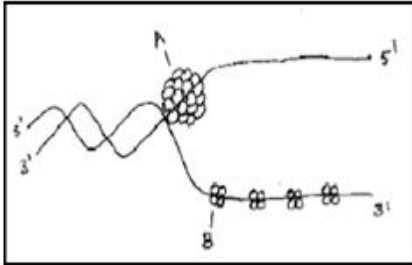
1. All questions are compulsory.
2. The question paper has five sections and 33 questions. All questions are compulsory.
3. Section–A has 16 questions of 1 mark each; Section–B has 5 questions of 2 marks each; Section– C has 7 questions of 3 marks each; Section– D has 2 case-based questions of 4 marks each; and 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. Wherever necessary, neat and properly labeled diagrams should be drawn.

Section A

1. Which of the following plant is not pollinated by the means of water? [1]
a) Lotus
b) Vallisneria
c) Zostera
d) Hydrilla
2. Cyanobacteria serves as important biofertilizers in the fields of: [1]
a) Wheat
b) Rice
c) Maize
d) Sugarcane
3. In which of the following interaction/s one species is benefitted while other is harmed? [1]
a) Competition only
b) Predation and Parasitism
c) Parasitism only
d) Competition and amensalism
4. The machine used to do PCR is called as: [1]
a) Thermocycler
b) Temperature regulator
c) Voltage Regulator
d) Heater
5. Which one is known as the lungs of the planet? [1]
a) Amazon rain forest
b) All producers
c) Deciduous forest
d) All tropic rain forest
6. The cellular layer that disintegrates and regenerates again and again is: [1]
a) Endometrium of blood vessels
b) Dermis of skin
c) Endometrium of uterus
d) Cornea of eye

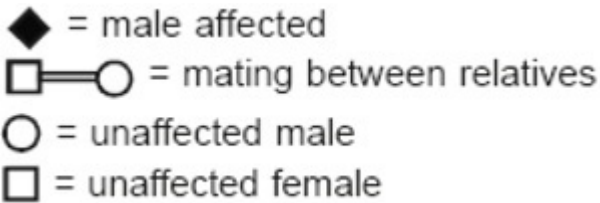
7. Biopiracy is the use of bio-resources by multinational companies and other organizations: [1]
- a) After paying compensation.
 - b) After proper authorization from concerned country.
 - c) Allowing GM products.
 - d) Without proper authorization from concerned country.

8. What does A & B represent? [1]



- a) Gyrase, Helicase
 - b) Helicase, Single strand binding protein
 - c) Double-Stranded Protein, Helicase
 - d) Topoisomerase Helicase
9. Which one of the following pairs of plant structures has a haploid number of chromosomes? [1]
- a) Nucellus and antipodal cells
 - b) Megaspore mother cell and antipodal cell
 - c) Egg and antipodal cells
 - d) Egg nucleus and secondary nucleus

10. Which one of the following symbols and its representation used in the human pedigree analysis is correct? [1]



- a) unaffected female
 - b) unaffected male
 - c) affected male
 - d) Mating between relatives
11. The best method to determine paternity is: [1]
- a) Protein analysis
 - b) gene counting
 - c) chromosome counting
 - d) DNA fingerprinting

12. In gel Electrophoresis, DNA bands are separated on the basis of [1]



- a) Molecular size
 - b) Molecular size and Molecular weight
 - c) Charge
 - d) Molecular weight
13. **Assertion (A):** A gamete may carry either of the traits but not both. [1]
Reason (R): During independent assortment traits are separated.

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

14. **Assertion (A):** Proconsul was intermediate between apes and man. [1]
Reason (R): It is considered as the ancestor of man.

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

15. **Assertion (A):** Core enzyme catalyses chain elongation of RNA. [1]
Reason (R): The presence of sigma factor is required for initiation of transcription.

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

16. **Assertion (A):** There is no chance of transmission of malaria to the man on the bite of a male Anopheles mosquito. [1]
Reason (R): It carries a non-virulent strain of Plasmodium.

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

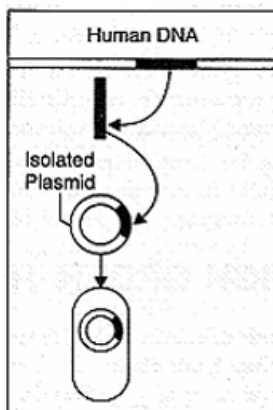
Section B

17. Lactic Acid Bacteria (LAB) sets milk into curd and also plays a very beneficial role for human health. Give any two suitable reasons. [2]



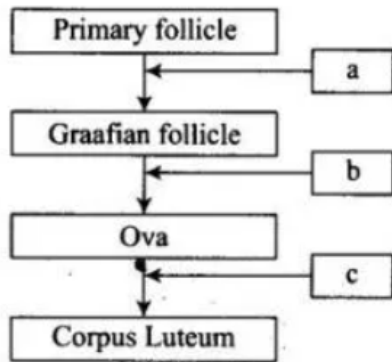
Name the unlabelled areas 'a' and 'b' of the pie chart representing biodiversity of vertebrates showing the proportionate number of species of major taxa.

19. Name the particular technique whose steps are shown in the following figure. Use the figure to summarise the technique in three steps. [2]



20. Given below is a flow chart showing ovarian changes during the menstrual cycle. Fill in the spaces giving the [2]

name of the hormones responsible for the events shown.



21. List any three important characteristics of a population and explain. [2]

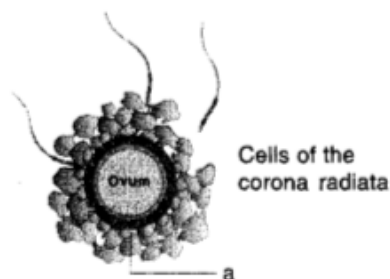
OR

How is Cuscuta adapted to be a parasitic plant?

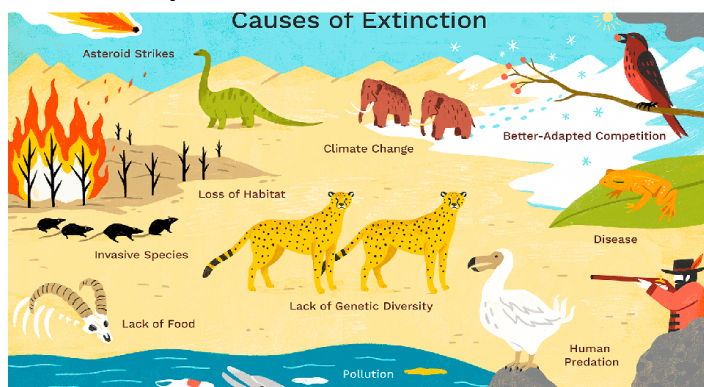
Section C

22. Bacillus thuringiensis plays an important role in Integrated Pest Management strategy. Explain how. Name any two crops that are protected efficiently from pests. [3]

23. Given below is the diagram of the sectional view of human ovum just after ovulation: [3]



- Name the part labelled 'a'.
 - What is the function of 'a'?
 - Mention the site of fertilisation in the fallopian tube of the human female where the ovum and sperm meet exactly.
24. Differentiate between Genotype and Phenotype. [3]
25. There are many animals that have become extinct in the wild but continue to be maintained in zoological parks. [3]



- Which type of biodiversity conservation is observed in this case?
 - Explain any other two ways, which help in this type of conservation.
26. What will be the advantage of transforming hybrid into apomictic form? [3]

OR

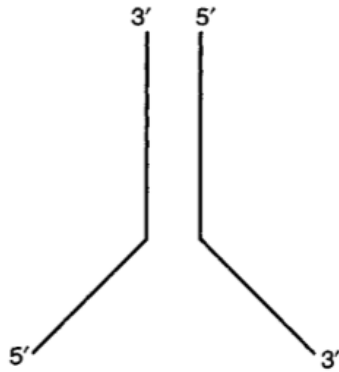
- With the help of a labelled diagram depict the organization of a typical embryo sac just after double fertilization.
- How are seeds advantages to angiosperms?

27. The energy flow in the ecosystem follows the second law of thermodynamics. Explain. [3]
28. List the objectives of Reproductive and Child Health Care Programmes (RCH). [3]

Section D

29. Read the text carefully and answer the questions: [4]

Study the image below:



- (i) Identify the structure shown above.
- (ii) Redraw the structure as a replicating fork and label the parts.
- (iii) Write the source of energy for this replication and list the enzymes involved in this process.

OR

Mention the difference in the synthesis based on the polarity of the two template strands.

30. Read the text carefully and answer the questions: [4]

Ryan is suffered from Adenosine Deaminase deficiency is a hereditary disease. His parents consulted a doctor.

The doctor prescribed treatment through gene therapy?

- (i) What is gene therapy?
- (ii) What is the function of adenosine Deaminase enzyme?
- (iii) In which year the first clinical gene therapy was given?

OR

Which tissue is obtained from the ADA patient for gene therapy?

Section E

31. Write the Oparin and Haldane's hypothesis about the origin of life on Earth. How does meteorite analysis favour this hypothesis? [5]

OR

You have studied the story of Pepper moths in England. Had the industries been removed, what impact could it have on the moth population? Discuss.

32. find out how to make orally active protein pharmaceutical. What is the major problem to be encountered? [5]

OR

Pesticidal crystal proteins (Cry) are endotoxins produced by *Bacillus thuringiensis*, and form crystal structures (thus the name "cry" proteins, short for crystal). Cry toxins have specific activities against insect species of the orders Lepidoptera (moths and butterflies), Diptera (flies and mosquitoes), Coleoptera (beetles), Hymenoptera (wasps, bees, ants and sawflies) and nematodes. When insects ingest toxin crystals, the alkaline pH of their digestive tract denatures the insoluble crystals, making them soluble and thus amenable to being cut with proteases found in the insect gut, which liberate the cry toxin from the crystal. The Cry toxin is then inserted into the insect gut cell membrane, paralyzing the digestive tract and forming a pore. The insect stops eating and starves to death; live Bt bacteria may also colonize the insect which can contribute to death.

- i. Give the scientific name of the soil bacterium which produces crystal (Cry) proteins.

- ii. How are these proteins useful in agriculture?
- iii. What do the different written terms **Cry** and **cry** represent respectively?
33. i. What is the chemical name of **smack**? Why is the consumption of smack considered as an abuse? [5]
- ii. Name the source plant and one effect of the following drugs on the human body:
1. Marijuana
 2. Cocaine
 3. Morphine

OR

Many secondary metabolites of plants have medicinal properties. It is their misuse that creates problems. Justify the statement with an example.

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