

SAMPLE PAER
FIRST TERMINAL EXAMINATION
CLASS-XII
SUBJECT-BIOLOGY

Time: 3 Hrs

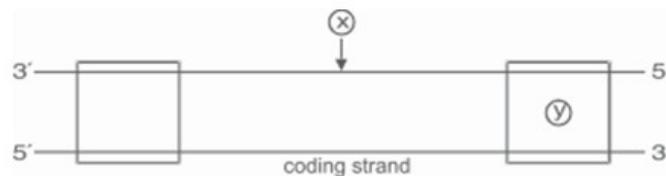
Max Marks: 70

General Instructions:

- (i) All questions are compulsory.
- (ii) This question paper consists of four Sections A, B, C and D. Section A contains 5 questions of one mark each, Section B is of 7 questions of two marks each, Section C is of 12 questions of three marks each and Section D is of 3 questions of five marks each.
- (iii) There is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and all the three questions of 5marks weightag. A student has to attempt only one of the alternatives in such questions.
- (iv) Wherever necessary, the diagrams drawn should be neat and properly labeled.

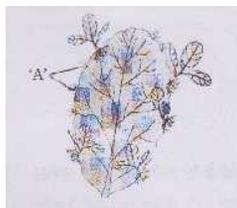
SECTION-A

1. Give an example of an aquatic plant pollinated by wind and a land plant pollinated by wind.
2. Give reasons
 - a) Pollen grains are well preserved as fossils
 - b) Pollen tablets are used by people these days
3. How do the following act as contraceptives
 - a) Cu-T
 - b) Saheli
4. How many true - breeding lines did Mendel select in pea plants for his experiments? Give two examples of contrasting traits studied by Mendel.
5. Name the parts X and Y of the transcription unit given below. Name the transcriptionally active region of chromatin in a nucleus.



SECTION-B

6. a) Identify 'A' in the given diagram and state its function.



(b) Which one of the following are albuminous or exalbuminous. Distinguish with justification.

(i) Pea (ii) Wheat

(iii) Groundnut (iv) Maize

7. Why do moss plants produce very large number of male gametes? Provide one reason. What are these gametes called?
8. What role does an individual organism play as per Darwin's theory of natural selection?
9. Draw a labeled sectional view of seminiferous tubule of human male and label the following cells
- I. Cells that divide by mitosis to increase their number
 - II. Cells that undergo meiosis I
 - III. Cells that undergo meiosis II
 - IV. Cells that help in spermiogenesis
- 10.
- a) Identify the example of convergent evolution from the following
- Flippers of penguin and Dolphin, Eyes of octopus and mammals and Vertebrate brains
- b) Write the hypothetical proposals put forth by Oparin and Haldane

OR

- a) Write the common ancestors for great apes and man.
- b) State the significance of Coelacanth in evolution.
11. With the help of a suitable example explain the role of anthropogenic actions on organic evolution.
12. Fill spaces A,B,C,D in the following table-

Organism	Disease /symptom
A	Fluid filled alveoli
Salmonella typhi	B
Microsporium	C
D	Malignant malaria

SECTION –C

- 13.
- a) Why do alga and fungi shift to sexual mode of reproduction just before the onset of adverse condition?
- b) Name an alga that reproduces asexually using Zoospores. Why are they called so? How they are different from conidia
- c) What is apomixes? Comment on its significance. How can it be commercially used?
14. A non biology person is quite shocked to know that apple is a false fruit, Banana is a seedless fruit and Mango is a true fruit. As a biology student how would you satisfy the person?
15. Draw a labeled diagram of an angiospermic anther lobe at microspore mother cell stage. Mention the role of different layers of anther.
- 16.

- a) Draw a diagrammatic sectional view of mature anatropous ovule and label the following parts in it
- I. That develops into seed coat
 - II. That forms embryo after fertilization
 - III. That forms endosperm in an albuminous seed
 - IV. Through which pollen tube gain entry into the embryosac
 - V. The stalk that attaches it to the placenta in the ovary.
 - VI. The layers that protect it. The mass of tissue enclosed by these layers.

b) Write differences between wind pollinated and insect pollinated flowers.

17.

a) Draw the following diagrams related to human reproduction and label them

- I. Zygote after first cleavage division
- II. Morula stage
- III. Blastocyst (sectional view)

b) What are the events taking place in ovary and uterus during follicular phase of menstrual cycle.

18. Write the function of following

- I. Fimbriae
- II. Acrosome
- III. sperm tail

19. a) From day 1 to day 28 of the menstrual cycle, in humans, name the phases, from :

- i) day 1 to day 5
- ii) day 6 to day 14
- iii) day 15 to day 28, -

Comment on changes that occur from day 15 to day 28.

b) Name the pituitary hormones that influence this cycle.

20.

- a) A childless couple has agreed for a test tube baby programme . List only the basic steps, the procedure will involve to conceive the baby
- b) All reproductive tract infections are STDs but all STDs are not reproductive tract infections. Justify giving examples.
- c) Classify the following contraceptive measures into different methods of birth control
- I. Vasectomy
 - II. Condoms

21.

- a) Plan an experiment and prepare a flow chart of the steps that you would follow to ensure that seeds are formed only from desired set of pollen grains.
- b) Name the type of experiment that you carried out.
- c) What is the importance of such experiments?

22.

- a) Write Erwin Chargaff's observation with respect to DNA molecule structure.
- b) Mention the type of allele that expresses itself only in homozygous state.
- c) A geneticist interested in studying variation and pattern of inheritance in living beings prefers to choose organisms for experiments with shorter life cycle. Provide reason.

23.

- a) What is cistron?
- b) Mention the role of AUG and UGA during protein synthesis.
- c) Draw a schematic representation of a dinucleotide and label the following
- I. The components of a nucleoside

- II. 5' end
- III. N- glycosidic linkage
- IV. Phosphodiester linkage

24. State the dual role of deoxyribonucleotide triphosphate during DNA replication. Draw a labeled schematic sketch of replication fork of DNA and explain the role of enzymes involved in DNA replication.

OR

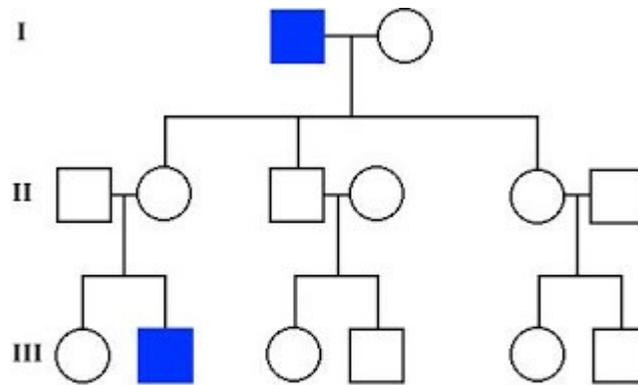
- a) A typical mammalian cell has 2.2 meter long DNA whereas the nucleus in which it is packed is just 10^{-6} m. Explain how such a long DNA molecule is packed within the nucleus .
- b) Rearrange the following in ascending order of evolutionary tree

Reptiles, Salamender, Lobefins, Frog

- c) Name two reproductive strategies that probably make reptiles more successful than amphibians

SECTION –D

25. a) Study the following pedigree chart and identify the pattern of inheritance with justification .



- b) Explain how phenylketoneurea can be considered as an example of pleiotropy?

OR

- a) Mendel published his work on inheritance of characters in 1865 but it remained unnoticed till 1900. Give reasons for the delay in accepting his work.
 - b) In pea plants the colour of flower is either violet or white whereas human skin colour shows many gradations. Explain giving reasons, how is it possible?
- 26.
- a) Name the scientist who suggested that genetic code should be made of a combination of three nucleotides. Explain the basis on which he arrived at this conclusion
 - b) What do you understand by UTRs? What is their significance?
 - c) Describe the experiment which demonstrated the existence of the transforming principle How was the biochemical nature of this transforming principle determined?

OR

- a) How do histones acquire positive charge
- b) Write the full form of VNTR. How is VNTR different from a probe?
- c) What is an operon? Explain the functioning of LAC operon.

27.

- a) Explain Hardy –Weinberg principle of genetic equilibrium. How does the process of natural selection affect Hardy – Weinberg principle?
- b) List other 4 factors that disturb this equilibrium

OR

- a) Explain Darwinian Theory of evolution with one suitable example. State the two main concepts of his theory.
- b) Mention any three characteristics of Neanderthal man that lived in near east and central Asia.