Sample Paper 2022-23

SAMPLE PAPER 1

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. A plant, being eaten by a herbivores which in turn is eaten by a carnivores makes: **[1]**

   a) Interdependence b) Omnivores

   c) Web of Food d) Food chain

2. Oligospermia is: **[1]**

   a) Less fertilization of ova b) Formation of inactive tissues

   c) Less formation of sperm d) Absence of sperms in the semen

3. Match the column and select correct option for ecologist and their concept: **[1]**

Column I (Ecologist)	**Column II (Concept)**
(A) Robert may	(i) Global species estimation
(B) A.V. Humboldt	(ii) Effect of area exploration on species richness
(C) David Tilman	(iii) Effect of decline of species on ecosystem
(D) Paul Ehrlich	(iv) Effect of species richness on productivity

   a) (A)-(i); (B)-(ii); (C)-(iv); (D)-(iii) b) (A)-(ii); (B)-(i); (C)-(iv); (D)-(v)

   c) (A)-(iii); (B)-(ii); (C)-(i); (D)-(v) d) (A)-(i); (B)-(ii); (C)-(iii); (D)-(iv)

4. In the test-tube baby technique embryo at how many blastomere stages is implanted in the uterus? **[1]**

   a) 16 b) 4

   c) All of these d) 8

5. Virus that kills bacteria are called: **[1]**

a) Macrophage
b) Saprophytes
c) Microphage
d) Bacteriophage

6. What's the difference between genetic drift and change due to natural selection? **[1]**

a) Genetic drift does not require the presence of variation.
b) Genetic drift never occurs in nature, natural selection does.
c) There is no difference.
d) Genetic drift does not involve competition between members of a species.

7. During anaerobic digestion of organic waste, such as in producing biogas, which one of the following is left undergraded? **[1]**

a) Lipids
b) Lignin
c) Cellulose
d) Hemi-cellulose

8. Edward’s syndrome, Patau’s syndrome and Down’s syndrome are due to: **[1]**

a) Change in both sex chromosomes and autosomes
b) Change in autosomes
c) Mutation due to malnutrition
d) Change in sex chromosomes

9. Where is the genetic information in body present? **[1]**

a) Enzymes and DNA
b) Enzymes
c) DNA
d) Structural proteins

10. Saccharomyces cervisiae is: **[1]**

a) Eukaryote
b) Prokaryote
c) None of these
d) Algae

11. Which one is incorrect statement? **[1]**

a) Retrovirus use as vector for animal
b) Ti plasmid of Agrobacterium tumifaciens is used as vector for plant
c) Divalent cation (Calcium) increase the diameter of a pore of cell wall
d) During transformation in the competent host first, give heat shock and then kept on ice

12. Sex of the child can be detected 95 per cent by: **[1]**

a) Size of child
b) Bar body
c) Expansion of uterus
d) Quantity of hormones in the blood of women

13. **Assertion (A):** In Turner’s syndrome, one A-chromosome is missing and in Klinefelter’s syndrome, the condition is XXY. **[1]**
Reason (R): These can be easily studied by analysis of karyotypes.

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):** After 24 hours, toddy becomes unpalatable. **[1]**

Reason (R): The fermentation of toddy is continued by naturally occurring yeasts.

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):** Autogamy is pollination between two flowers on the same plant. **[1]**

Reason (R): Xenogamy is pollination between two flowers on different plants.

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:** Comparative biochemistry provides strong evidence in favour of common ancestry of living beings. **[1]**

Reason: Genetic code is universal.

a) If both Assertion & Reason are true but the reason is not the correct explanation of the assertion

b) If both Assertion & Reason are true and the reason is the correct explanation of the assertion

c) If Assertion is true statement but Reason is false

d) If both Assertion and Reason are false statements

Section B

17. Write short notes on the Production of human growth hormone by E.coli. **[2]**

18. Name the hosts and the site where the following occur in the life cycle of a malarial parasite: **[2]**

(a) Formation of gametocytes

(b) Fusion of gametocytes

19. A child has blood group O. If the father has blood group A and mother blood group B, work out the genotypes of the parents and the possible genotypes of the other offsprings. **[2]**

20. Give the composition of gases in the Miller's experiment. In what form had Miller supplied energy in his experiment? **[2]**

21. How does addition of a small amount of curd to fresh milk help formation of curd? Mention a nutritional quality that gets added to the curd. **[2]**

OR

What is the chemical nature of biogas. Name an organism which is involved in biogas production?

Section C

22. Explain what is meant by environmental resistance and its relationship to population growth. **[3]**

23. Explain the following terms with examples: **[3]**

a. Co-dominance

b. Incomplete dominance

24. a. What is the primary productivity of an ecosystem and how is it expressed? **[3]**

b. Explain what does the equation given below show:

NPP = GPP - R

25. Write short note on RCH programmes. **[3]**

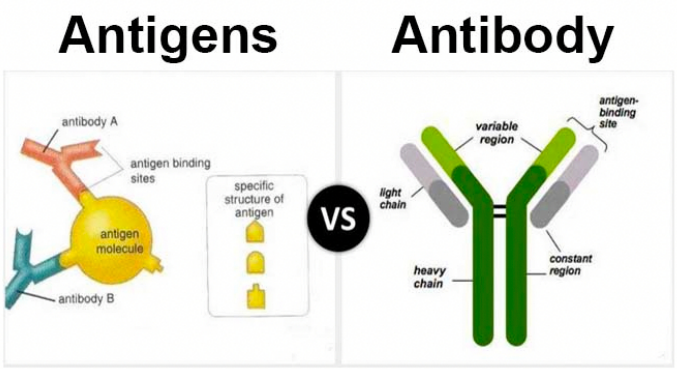
26. How is biodiversity important for ecosystem functioning? **[3]**

OR

Explain giving three reasons, why tropics show greatest levels of species diversity?

27. Sweet potato tubers and potato tubers are the result of convergent evolution. Justify the statement. **[3]**

28. The image here compares Antigens and Antibody. **[3]**



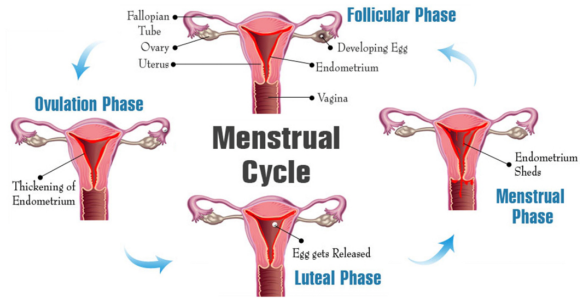
i. Define the terms Antigen and Antibody.

ii. Name any two diagnostic kits based upon them.

Section D

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

The image below shows the menstrual cycle of a human female. On the basis of this cycle:



(i) Explain the menstrual phase in a human female. State the level of ovarian and pituitary hormones during this phase.

(ii) Why is follicular phase in the menstrual cycle also referred as proliferative phase? Explain.

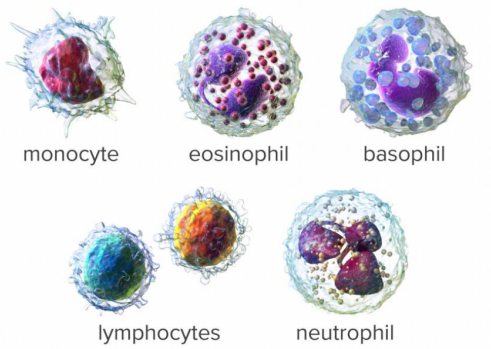
(iii) Explain the events that occur in a Graafian follicle at the time of ovulation and thereafter.

OR

Draw a Graafian follicle and label antrum and secondary oocyte.

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

A lymphocyte is **a type of white blood cell**. Enlarge. Blood cells. Blood contains many types of cells: white blood cells (monocytes, lymphocytes, neutrophils, eosinophils, basophils, and macrophages), red blood cells (erythrocytes), and platelets. Blood circulates through the body in the arteries and veins.



(i) Why are the antigens called antibody-generating chemicals?

(ii) Which two types of lymphocytes are involved in immunity?

(iii) Give the common site of formation of two types of lymphocytes.

OR

What is the site of differentiation of two types of lymphocytes?

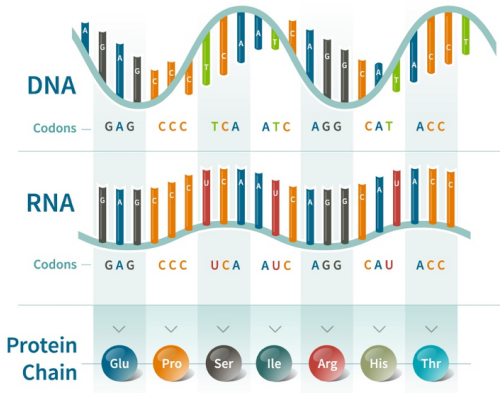
Section E

31. With a neat diagram explain the 7-celled, 8-nucleate nature of the female gametophyte. **[5]**

OR

Describe the development of dicot embryo.

32. Study the image and answer the questions that follows: **[5]**



i. Write the specific features of the genetic code AUG.

ii. Genetic codes can be universal and degenerate. Write about them, giving one example of each.

iii. Explain aminoacylation of the tRNA.

OR

Describe the structure of a ribosome, taking into consideration, its role in protein synthesis.

33. Suggest and describe a technique to obtain multiple copies of a gene of interest in vitro. **[5]**

OR

Write a short note on gene transfer.