

Roll No. _____

D.A.V. INSTITUTIONS, CHHATTISGARH

SAMPLE QUESTION PAPER-2023-24

CLASS XII

SUBJECT-BIOLOGY

Time Allowed: 3 Hours

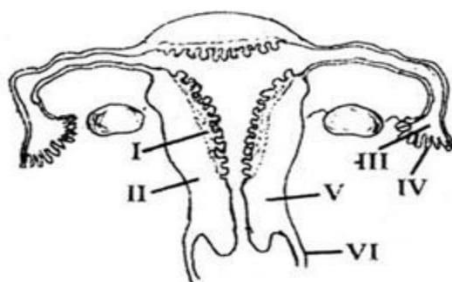
Maximum Marks: 70

GENERAL INSTRUCTIONS:

- (i) All questions are compulsory.
- (ii) The question paper has five sections and 33 questions.
- (iii) 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.
- (iv) 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.
- (v) Wherever necessary, neat and properly labeled diagrams should be drawn.

SECTION A

1. The site where Lymphocytes interact with antigen and proliferate to become effective cells are
 - a) Spleen and Lymph Node
 - b) Bone marrow and thymus.
 - c) Peyer's Patches and Tonsils.
 - d) Both (a) and (c)
2. The figure given below depicts a diagrammatic sectional view of the female reproductive system of human , which are of the three parts out of I—IV have been correctly identified



- a) (i) Perimetrium (ii) Myometrium (iii) Fallopian Tube
 - b) (ii) Endometrium (iii) Infundibulum (iv) Fimbriae
 - c) (iii) Infundibulum (iv) Fimbriae (v) cervix
 - d) (iv) Oviduct funnel (v) Uterus (vi) Cervix
3. Identify the Human developmental stage shown below as well as the related right Place of its occurrence in a normal pregnant woman, and select the right option for the together.

S.No	Developmental stage	Site of occurrence
1	Late Morula	Middle part of fallopian tube
2	Blastula	End part of fallopian tube

3	Blastocyst	Uterine wall
4	8 celled stage	Starting point of fallopian tube

4. Match the column A with Column B

A	B
a Cyclosporin –A	i Reduce cholesterol
b Lactic acid	ii Clot Buster
c Statin	iii Turns milk in to curd
d Streptokinase	iv Immune suppressor

1. a (iii) b (iv) c (ii) d(i)
2. a (iv) b (iii) c(ii) d(i)
3. a (iv) b(iii) c (i) d(ii)
4. a(i) b(ii) c(iii) d(iv)

5. Which of the following cells of microsporangium have more than one nucleus, possess dense cytoplasm and nourishes the developing pollen grains.

- [a] Endothelium [b] Tapetum [c] Epidermis [d] Middle layer

6. Even after killing the generative cell with a laser beam the pollen grain of flowering plant germinates and produces normal pollen tube.

- a) Laser beam stimulates pollen germination
- b) Laser beam does not damage the region from which pollen tube emerges
- c) The contents of the killed generative cell permit germination of pollen growth.
- d) The vegetative cell has not been damaged.

7. The treatment of snake bite by Antivenom is an example of

- a) Artificially acquired active immunity
- b) Artificially acquired passive immunity
- c) Naturally acquired passive immunity
- d) Specific natural immunity

8. ABO blood group in human are controlled by the gene I . It has a three alleles, six different genotypes are possible. How many phenotypes can occur?

- [a] Four [b]Two [c] Three [d] one

9. A biologist studied the population of rats in a barn. He found that the average natality was 250, average mortality 240, immigration 20 and emigration 30. The net increase in population is

- a) Zero b) 10 c) 15 d) 05

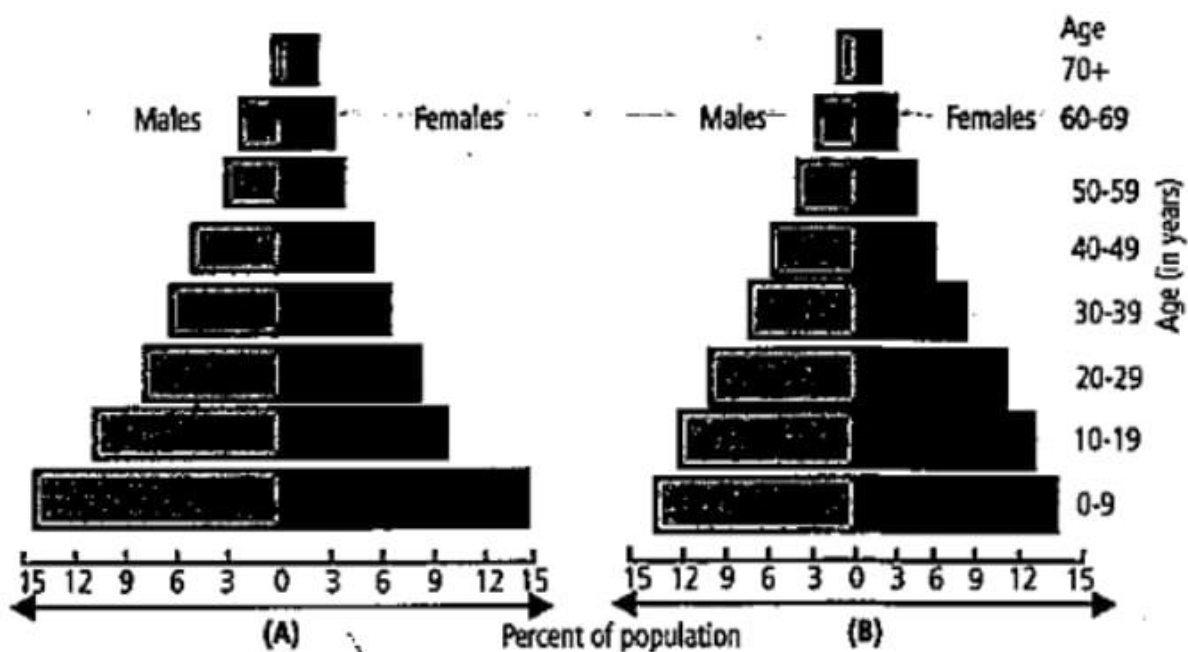
10. Which one the following is a wrong statement regarding mutation.

- a) Deletion and insertion of base pairs cause frame shift mutation.
- b) Cancer cells commonly show chromosomal aberrations.
- c) UV radiations and Gamma radiations are mutagens
- d) Change in a single base pair of DNA does not cause mutations.

11. Light coloured pepper moth (*Biston betularia*) gets changed into dark Carbonaria variety due to

- a) Translocation of block of genes in response to heavy carbons
- b) Deletion of gene segments due to industrial pollution
- c) Mutations of single gene for survival in smoke laden industrial environment.
- d) Industrial Carbon deposited on wings.

12. A country with a high rate of population growth took measures to reduce it. The figure below shows age –sex pyramids of populations A and B twenty years apart ,. Select correct interpretations:



- a) 'A' is more recent and shows slight reduction in the growth rate.
- b) 'B' is earlier pyramid and shows stabilized growth rate.
- c) 'B' is more recent showing that population is very young.
- d) 'A' is more earlier pyramid and no change has occurred in the growth rate.

Question no 13 to 16 consist of two statements – Assertion and Reason (R). Answer these questions selecting the appropriate option given below:

- A. Both A and R are true and R is the correct explanation of A
- B. Both A and B are true and R is not the correct expiation of A

C. A is true but R is false.

D Both Assertion and Reason are False .

13. Assertion: Genetic engineering overcomes the drawbacks of traditional hybridization.

Reason: Genetic engineering involves creation of recombinant DNA and introduce the desirable genes in to target organisms.

14. Assertion: A second immune response is quicker and stronger than primary one

Reason: Memory cells conversant with the recoming antigens are ready to combat the invader.

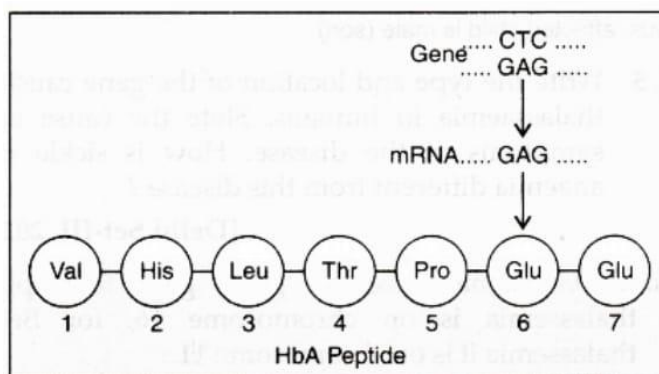
15. Assertion: Predation and parasitism are considered to be negative interactions.

Reasons: Parasites and predators limit the population.

16. Assertion: A part of cellulosic materials of human food is digested in the intestine. Reason: Methanogen present in the human intestine digest the cellulose.

SECTION B

17. Given below is the representation of amino acids composition of the relevant translated portions beta. Chain of Haemoglobin , related to the shape of human red blood cells.



a) Is this representation indicating a normal human or a sufferer from certain related genetic disorder? Give reason in support of your answer.

b) What difference would be noticed in phenotype of the normal and the sufferer related to this gene?

18. Complete the given table:

S.NO	stages in human evolution	Features
1	Australopithecians	A
2	B	Probably ate meat, Their brain capacity was around 900cc
3	Niianderthal man	C
4	D	Arose between 75000 -100000 years ago.

19. Describe active and passive immunity with suitable example.

20. When you go for a trek / trip to any high altitude places, you are advised to take rest for the first two days. Comment, giving reasons.

21. A team of students are preparing to participate in the inter school sports meet. During a practice session you find some vials with labels of certain cannabinoids
- (a) Will you report to the authorities? Why?
 - (b) Name a plant from which such chemicals are obtained.
 - (c) Write the effect of these chemicals on human body.

OR

Recombinant DNA-technology is of great importance in the field of medicine. With the help of a flow chart, show how this technology has been used in preparing genetically engineered human insulins.

SECTION C

22. How does a detritivore differ from a decomposer? Explain with an example each.
23. Choose any three microbes, from the following which are suited for organic farming which is in great demand these days for various reasons. Mention one application of each one chosen.

Mycorrhiza; Monascus; Anabaena; Rhizobium; Methanobacterium; Trichoderma.

24. Unless the vector and source DNA are cut, fragments separated and joined, the desired recombinant vector molecule cannot be created.
- (a) How are the desirable DNA sequences cut?
 - (b) Explain the technique used to separate the cut fragments.
 - (c) How are the resultant fragments joined to the vector DNA molecule?
25. How do “Pleiotropy”, “incomplete dominance”, “co-dominance” and “polygenic inheritance” deviate from the observation made by Mendel?

Explain with the help of one example for each.

OR

How did Griffith prove transforming principle in Genetics. Explain the procedure.

26. If there is a history of haemophilia in the family, the chances of male members becoming haemophilic are more than that of the female.
- (a) Why is it so?
 - (b) Explain it with suitable cross.
27. Name the kind of diseases/disorders that are likely to occur in humans if
- (i) Mutation in the gene that codes for an enzyme phenyl alanine hydrolase occurs,
 - (ii) There is an extra copy of chromosome number 21,
 - (iii) the karyotype disease is XXY.
28. Differentiate between mutualism, parasitism and commensalism. Provide one example for each of them.

SECTION D

29. If a child has cold like symptoms lasting longer than a week or develops a cold at the same time every year, talk with your doctor, who might diagnose an allergy and prescribe medicines, or may refer you to an allergist for allergy test. To find the cause of an allergy, the allergist usually do skin test for the most common environment and food allergens.

- a) What is known as allergy?
- b) Write the symptoms of allergy.

c) what are the chemicals released during Allergy?

OR

c) Write any four allergens and any three chemical used for treatment.

30. A youth in his twenties met with an accident and succumbed to the injuries. His parents agreed to donate his organs. Organ transplantation is medical procedure in which an organ is removed from one body and placed in the recipient, to replace a missing or damaged organ.

[a] List any two essential clinical steps to be undertaken before any organ transplant.

[b] Why is the transplant rejected sometimes?

[c] What is known as auto transplantation? Give examples.

OR

[c] What views would you share with your health club members to promote organ donation. ?

SECTION E

31. Under polio prevention programme, infants in India are given polio vaccines on a large scale at regular intervals to eradicate polio from the country.

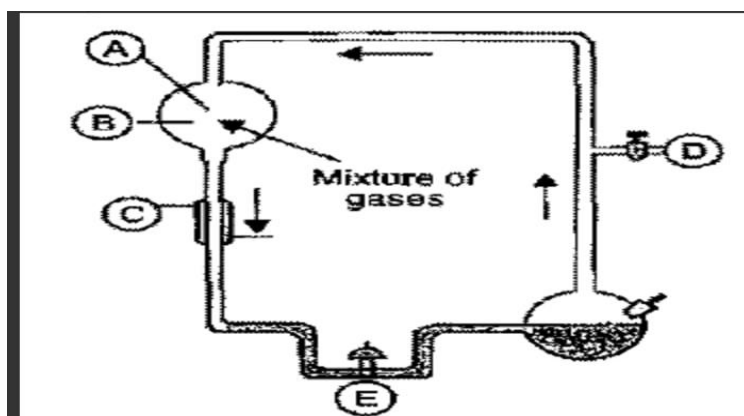
(a) What is a vaccine? Explain how it imparts immunity to the child against the disease.

(b) With the help of an example explain the auto immune system.

. OR

What are bio fertilizers? Describe their role in agriculture. Why are they preferred to chemical fertilizers?

32. i) What is the given structure is showing?



ii) Name the parts marked in the diagram

iii) Who made the structure shown in the figure?

iv) What were the findings on the basis of this experiment?

v) What products recovered from the part E after experiment?

OR

a) Explain the structure of t-RNA with the help of a diagram. b) Describe its role in the process of translation.

33. Answer the following:

[a] Mention the name of the causal organism , symptoms and mode of transmission of the disease Ameobiasis.

[b] Name the confirmatory test for Typhoid and AIDS.

OR

- a) Name the scientific name of the parasite that causes malignant Malaria in human.
- b) Name the respective forms in which the malaria parasite gain entry into i) Human body ii) body of female Anopheles.
- c) Name the hosts where the sexual and asexual reproductions of Malaria parasite occur respectively.
- d) Name the Toxin responsible for the appearance of symptoms of malaria in humans. Why do the symptoms occur periodically?

