

BHARATIYA VIDYA BHAVANS V.M. PUBLIC SCHOOL
SAMPLE PAPER-5
SUBJECT –BIOLOGY

The following instructions are to be read carefully

1. All questions are compulsory.
2. The question paper consists of 26 questions. Question no.1-5 is of 1 mark each, question no.6-10 is of 2 marks each , question no.11-22 is of 3 marks each , question no. 23 is of 4 marks and question no.24-26 is of 5 marks each .
3. 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 5 marks weightage . A student has to attempt only one of the alternatives in such questions .

- Q1) What do you call a non-coding intervening nucleotide sequence in eukaryotic gene?
Q2) How many autosomes are present in human sperm?
Q3) What is follicular atresia?
Q4) Which type of insects are killed by the proteins produced by some strains of *Bacillus thuringiensis*?
Q5) Why a food chain has only a few trophic levels?
Q6) Fertilisation performs two functions. What are these?
Q7) Give reason for the statement “An ecosystem is a self-regulatory and dynamic system”?

OR

Justify the statement “wild life acts as a gene bank”?

- Q8) Define hybrid? Write two objectives of hybridization.
Q9) How do humoral and cell –mediated immune system differ from each other?
Q10) Why can we not take incomplete dominance in snapdragon as an evidence of blending inheritance?
Q11) What are antibodies? Name the different types of antibodies produced in human body.
Q12) What is mutational breeding? What are its limitations?
Q13) Briefly mention the changes in the human ovary which takes place under the influence of FSH

OR

Why is the second half of a menstrual cycle called secretory phase in human female? List the changes that occur in the uterus during this phase.

- Q14) Write the full form of VD? Name two non curable VD
Q15) Give reason why human skin color is observed in many shades.
Q16) Consider a short message:

AUGGCAGUGCCA

Answer the following questions, assuming first that the code is overlapped and then it is non-overlapping.

- a) How many codons would be represented in this oligonucleotide?
 - b) If the second G is changed to a C, how many codons would be changed?
- Q17) What is biogeography? How Darwin succeeded to use the evidence from biogeography in favor of evolution.
Q18) What measures as an individual would you take to reduce environmental pollution?
Explain how do electrostatic precipitators work?
Q19) Create an aquatic food chain in a water body into which effluents flow from a nearby

pesticide factory. Diagrammatically represent bio magnifications in this food chain.

Q20) Multinational companies are trying to patent based on Indian traditional herbal medicines and other useful plants.

- a) Why should we counter these applications immediately?
- b) Give one example for such an action.

Q21) How can insertional inactivation help in the selection of recombinants?

Q22) What is the cause of adenosine deaminase deficiency in a person? Why is it that even after infusion of genetically engineered lymphocytes into the patient suffering from deaminase deficiency, the cure is not permanent?

Q23) Teacher tried explaining students that microbes not only harmed life but also played a pivotal role in the human welfare.

- a) Name the microbe which helps in producing an immunosuppressant?
- b) Name the microbe that produces a blood cholesterol lowering agent?
- c) Name the microbe which helps in producing clot-busters?
- d) How microbe improves the nutritional qualities of curd?
- e) Which value is reflected in the teachers teaching?

Q24 a) Define infertility?

- b) List two causes of infertility.
- c) Name some assisted reproductive technologies to check the problem of infertility.

OR

Pollination is an important phenomenon in the life cycle of a flowering plant .Describe the agencies responsible for this?

Q25) a) Draw a graph for a population whose population density has reached the carrying capacity.

- b) Why is this logistic growth model considered a more realistic one for most animal populations?
- c) Draw a growth curve where resources are not limiting to growth of a population.

OR

- a) Why should unleaded petrol be used in automobiles fitted with catalytic convertors.
- b) What is the objective of Environment (protection)act 1986?
- c) Suggest any four measures to curb noise pollution.

Q26) a) A child suffering from autosomal recessive inherited disease is born to a normal couple. But the mother is being blamed by the family for delivering a sick baby. How would you counsel the family not to blame the mother for delivering a child suffering from this disease? Explain.

b) What are the advantages of molecular diagnostics over conventional methods?

OR

- a) Define and expand PCR.
- b) Detail the sequences involved in each cycle of this technique.
- c) Why is a thermostable DNA polymerase needed in the amplification?