

BHARATIYA VIDYA BHAVANS V.M. PUBLIC SCHOOL
SAMPLE PAPER 1
SUBJECT –BIOLOGY

General Instructions:

1. All questions are compulsory
2. This question paper consists of four Sections A, B, C, D and E. Section –A contains 5 questions of 1 mark each, Section –B is of 5 questions of 2 marks each, Section –C has 12 questions of 3 marks each, Section D is of 1 question of 4 marks and Section E has 3 questions 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. Attempt only one of the choices in such questions.
4. Wherever necessary, the diagrams drawn should be neat and properly labeled.

Section A

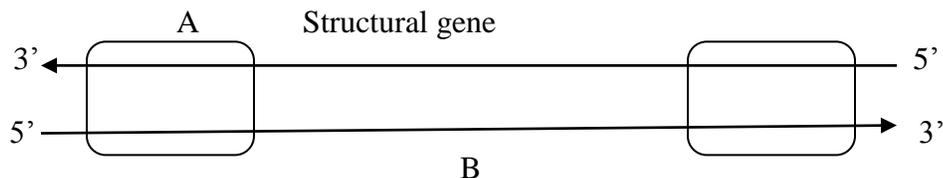
1. Identify the type of Asexual reproduction.



2. A child suffering from Down's syndrome. Mention the cause of abnormality?
3. State the importance of SCP.
4. Very small animals are rarely found in the polar regions. Give reason.
5. What are called 'molecular Scissors'?

Section –B

6. Name the parts 'A' and 'B' of the transcription unit given below



7. Pills are widely accepted as ideal methods of contraception by women.
 - a) How does it effectively prevent pregnancy?
 - b) What is R.T.I.?
8. What is snow blindness?
9. Giving two reasons explain why there is more species diversity in the tropics than in the temperate latitudes.
10. A person shows a strong immunogenic reaction while exposed to certain substances. Name this condition and the common term for such substances. Mention the cell and the chemical which causes this condition.

OR

Why meristem of a plant is taken for tissue culture? What is a Soma clone?

Section -C

11. Complete the table by identifying a, b and c

Type of Microbe	Name	Product
Fungus	<u> a </u>	Penicillin
<u> b </u>	Lactobacillus	Lactic acid
Cyano bacteria	Nostoc	<u> c </u>

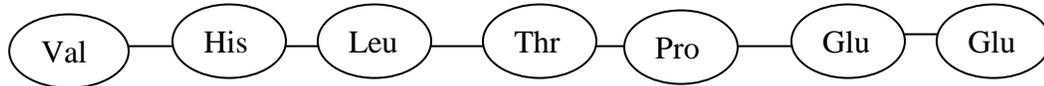
12. a) How do cancerous cells differ from normal cells?
b) What is the role of interferons in the treatment of cancer?
13. How do mycorrhizae act as biofertilizer? Explain. Name the genus of the fungi that forms mycorrhizal associations with plants.

OR

Name the source of Streptokinase. What is the role of this bioactive molecule in the human body?

14. Name the type of interaction in each of the following-
- i)
 - a) Sucker fish attached to shark
 - b) wasp pollinating fig inflorescence
 - c) Smaller barnacles disappeared when Balanus dominated the coast of Scotland
 - d) A scaris lives in the intestine of man.
 - ii) What is a Pioneer species?

15. Mention any three strategies adopted by flowering plants to prevent self pollination.
16. Draw the structure of a male reproductive unit.
17. a) Draw a pyramid of numbers of a situation, where a large population of insects feed upon a very big tree. The insects in turn are eaten by small birds, which in turn are feed upon by big birds.
- b) Differentiate giving reasons between the pyramid of energy of the above and the pyramid of number that you have drawn.
18. The amino acid composition of a portion of β chain of Haemoglobin is shown below;



The codon for the sixth amino acid is GAG. The sixth codon GAG mutates to GAA as a result of mutation 'A' and to GUG as a result of mutation "B". Haemoglobin structure did not change as a result of mutation 'A' whereas it became sickle shaped as a result of mutation 'B'. Explain giving the reason how is this possible.

19. During the process of transcription in Eukaryotes, the primary transcript formed is very different from the mature RNA.
- What is the primary transcript called as?
 - How is it different from the mature RNA?
 - Explain the steps in the formation of mature RNA from the primary transcript.
20. MOET is considered to be a successful program in cattle breeding. Explain the steps involved in carrying out this program in cows.
21. (a) What is adaptive radiation?
(b) Can we call human evolution as adaptive radiation.
22. A specific gene sample of interest need to be amplified by PCR . What are the main steps that are involved ? what is the special feature of the DNA polymerase used in PCR? Name the organism from which this enzyme is isolated ?

Section D

23. Ram is an adolescent who accidentally addicted to drug. His parents took him to a counselor. If he is your friend how will you motivate him to avoid drug. Why adolescent is more prone to drug addiction?

Section E

24. a) Show diagrammatically the stages of embryonic development from Zygote to implantation in humans.
- b) Briefly explain the formation of chorionic villi at the placenta in embryonic development.

OR

- a) Diagrammatically show the stages in the development of megaspore mother cell to form a mature embryo sac in angiosperms.
 - b) Why is this type of embryo sac development called as monosporic.
25. a) A true breeding homozygous pea plant with green pods and axial flowers as dominant characters is crossed with a homozygous recessive pea plant with yellow pods and terminal flowers. Work out the cross up to F₂ generation. Give the phenotypic ratio of the F₂.
- b) Name the law that can be deduced from this cross and not from a monohybrid cross.

OR

How did Alfred Hershey and Martha Chase Prove that DNA is the hereditary material?

26. a) Alien species are highly invasive and a threat to species diversity. Substantiate this statement with suitable examples from both plants and animals.
- b) List two criteria to determine a hotspot of biodiversity.
 - c) Name two hotspots of biodiversity in India.

OR

- a) What causes the depletion of Ozone in the stratosphere? Explain the role of UV Rays and this chemical in its depletion.
- b) How does this depletion affect human life?

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