

# SAMPLE QUESTION PAPER

## BLUEPRINT

Time Allowed : 2 Hours

Maximum Marks : 35

S. No.		Chapter	Section-A (2 marks)	Section-B (3 marks)	Section-C (5 marks)	Total
8.	Unit-VIII	Human Health and Diseases	2(4)	2(6) + 1*	–	14
10.		Microbes in Human Welfare	2(4) + 1*	–	–	
11.	Unit-IX	Biotechnology - Principles and Processes	–	2(6)	1(5)	11
12.		Biotechnology and its Applications	–	–	*1(5)	
13.	Unit-X	Organisms and Populations	2(4) + 1*	–	–	10
15.		Biodiversity and Conservation	–	2(6)	–	
		<b>Total Questions</b>	<b>6(12)</b>	<b>6(18)</b>	<b>1(5)</b>	<b>13(35)</b>

\*It is a choice based question.

# BIOLOGY

Time allowed : 2 hours

Maximum marks : 35

## General Instructions :

- (i) All questions are compulsory.
- (ii) The question paper has three sections and 13 questions. All questions are compulsory.
- (iii) Section-A has 6 questions of 2 marks each; Section-B has 6 questions of 3 marks each; and Section-C has a case-based question of 5 marks.
- (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. Mention any two human diseases caused by helminths. Name their causative agents and their mode of transmission into the human body.
2. During the production of curd, a small amount of curd is added as a starter to the fresh milk at a suitable temperature. Explain the changes the milk undergoes when it sets into curd.

OR

Name the bioactive molecules produced by *Streptococcus*, *Monascus* and *Trichoderma*. State their medicinal value.

3. A student on a school picnic to a park on a windy day started sneezing and having difficulty in breathing. The teacher enquired whether the student was allergic to something.
  - (a) What is an allergy?
  - (b) Write two unique characteristics of the system involved in the response observed in the student.
4. "Secondary treatment of the sewage is also called biological treatment". Justify this statement and explain the process.
5. Bear hibernates whereas some species of zooplanktons enter diapause to avoid stressful external conditions. How are these two ways different from each other?
6. When an organism is called a 'conformer'? Explain with the help of an example.

OR

Why do clown fish and sea anemone pair up? What is this relationship called?

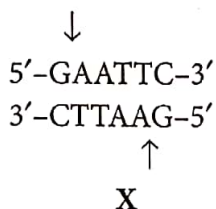
## SECTION - B

7. Name the cells HIV attacks first when it gains entry into a human body. How does this virus replicate further to cause immunodeficiency in the body?

OR

“Prevention is better than cure” is an apt slogan to safeguard adolescents from drug abuse. List any six steps that could be taken in this regard.

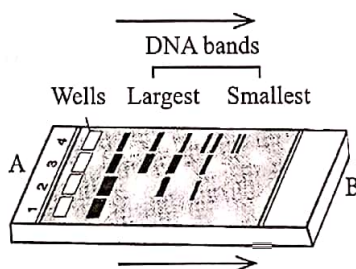
8. List the two types of immunity a human baby is born with. Explain the differences between the two types.
9. Many copies of a specific gene of interest are required to study the detailed sequencing of bases in it. Name and explain the process that can help in developing large number of copies of this gene of interest.
10. In *Ex-situ* conservation, threatened animals and plants are taken out from their natural habitat and placed in a species setting for protection and special care. List any four techniques where the principle of *ex-situ* conservation of biodiversity has been employed.
11. Since the origin of life on Earth, there were five episodes of mass extinction of species.
  - (a) How is the ‘Sixth Extinction’, presently in progress, different from the previous episodes?
  - (b) Who is mainly responsible for the ‘Sixth Extinction’?
  - (c) List any four points that can help to overcome this disaster.
12. (a) Write the term given to X and what do arrows represent?



- (b) Draw *E. coli* cloning vector pBR322 and label various restriction sites and *rop* gene. Mention their functions.

### SECTION - C

13. Given below is the diagram representing the observations made for separating DNA fragments by gel electrophoresis technique. Observe the illustration and answer the questions that follow.



- (a) Why are the DNA fragments seen to be moving in the direction A → B?
- (b) Write the medium used in which DNA fragments separate.
- (c) Mention how the separated DNA fragments can be visualised for further technical use.
- (d) Write down the steps after separation of DNA on the agarose gel.

OR

Two children, A and B aged 4 and 5 years respectively visited a hospital with a similar genetic disorder. The girl A was provided enzyme replacement therapy and was advised to revisit periodically for further treatment. The girl B was, however, given a therapy that did not require revisit for further treatment.

- (a) Name the ailments the two girls were suffering from.
- (b) Why did the treatment provided to girl A required repeated visits?
- (c) How was the girl B cured permanently?