

# TERM-II

# 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)	11	
12.		Biotechnology and its Applications	–	–		
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.

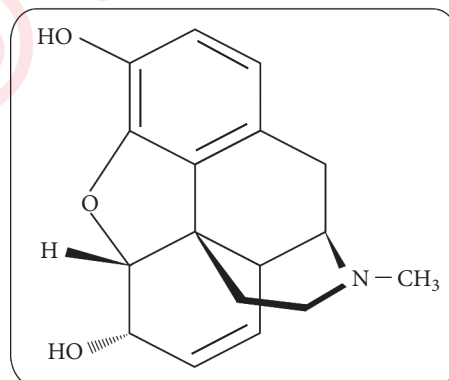
## SECTION - A

1. Liver fluke is a flatworm which causes helminthic diseases. Name the two intermediate hosts which the human liver fluke depends on to complete its life cycle so as to facilitate parasitisation of its primary host. Name the disease caused by the liver fluke.
2. Name the source of streptokinase. How does this bioactive molecule function in our body?

OR

Why is *Rhizobium* categorised as a 'symbiotic bacterium'? How does it act as a biofertiliser?

3. Given below is a chemical structure of a drug which is highly addictive and is taken orally or inhaled or injected.



- (a) Name the source plant of given structure. How is it obtained from the plant?
  - (b) Write the effects of heroin on the human body.
4. Explain the significant role of the genus *Nucleopolyhedrovirus* in an ecological sensitive area.
  5. Why are some organisms called as eurythermals and some others as stenothermals?
  6. Discuss any three adaptations found in halophytes growing in saline marshes.

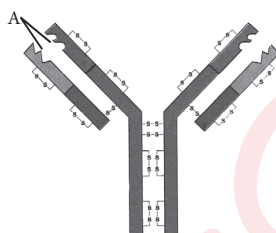
OR

How does the given mammal manage to fly in darkness without using their eye sight for finding their path and location of food?



### SECTION - B

7. B-lymphocytes are responsible for producing an army of proteins in response to pathogens into our blood to fight against them. Given below is a cartoon of such protein.



- (a) Identify the molecule shown and the site labelled 'A'.  
(b) Why is this molecule referred to as  $H_2L_2$ ? Explain.  
(c) Why does the response produced by the given molecule is called humoral immune response?

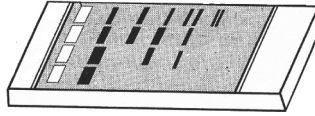
OR

At what stage does *Plasmodium* gain entry into the human body? Write the different stages of its life cycle in the human body.

8. What is the functional difference between B-cells and T-cells?  
9. Write the steps you would suggest to be undertaken to obtain a foreign-gene-product.  
10. "Alien species are highly invasive and are a threat to indigenous species". What is meant by 'alien species' invasion? Name one plant and one animal alien species that are a threat to our Indian native species.  
11. Many plant and animal species are on the verge of their extinction because of loss of forest land by indiscriminate use by the humans. As a biology student what method would you suggest along with its advantages that can protect such threatened species from getting extinct?  
12. Why and how bacteria can be made 'competent'?

### SECTION - C

13. To produce *rDNA*, source DNA is subjected to restriction enzyme digestion which produce fragments of variable lengths. These DNA fragments are separated by the given technique.



- (a) Name the technique used to separate DNA fragments. Completely label the diagram showing migration of DNA fragments.
- (b) How can we check the progress of restriction enzyme digestion?
- (c) Mention the five steps involved in the given technique.

**OR**

Recombinant DNA technology is engaged in production of newer and safer therapeutic drugs. For proper management of disease, it is important to diagnose it early. Diagnosis of disease when pathogen has multiplied is quite late, so now early diagnosis is possible with the help of molecular probes. If amount of DNA available is small, then it can be amplified using the technique polymerase chain reaction.

- (a) What are molecular probes? How they help in diagnosing disease?
- (b) In gel electrophoresis, mixture of DNA, RNA and proteins is treated by blotting for determining their identity. Discuss different types of blotting.
- (c) Name any two diseases where molecular diagnosis can be helpful.