

Mock Board Exam

STD: XII

SUBJECT: Biology

ASSESSMENT: Mock Test

Maximum marks : 35

15/3/2022 11:00 - 15/3/2022

Time Limit : 90 Minutes

22:30

Internal choices have been provided in one question in Section B and one question in Section C.

Attempt all questions.

A student has to answer a question either by typing it out, in the space provided, or writing down each answer on paper, and uploading a picture of it using the upload option.

A student is advised to write the answers in a clear, legible handwriting using a blue/black ball point pen before uploading it.

Section A

7 Marks

7 Marks

- 1 Which component protects the child from a disease he/she is vaccinated against? **1 M**
- 2 Given below are pairs of pathogens and diseases caused by them. Find out the incorrect match and mention the reason? **1 M**
 - (a) Virus - Common Cold
 - (b) Salmonella - Typhoid
 - (c) Microsporum - Filariasis
 - (d) Plasmodium - Malaria
- 3 Which of the following microbes is used for the commercial production of citric acid? **1 M**
(A) *Xanthomonas citri* (B) *Asparagus* (C) *Penicillium* (D) *Aspergillus*
- 4 In rice fields, which bio-fertilizer is successfully used? **1 M**
- 5 Which hormone is injected to cows for excess production of milk? **1 M**
- 6 Assertion :- In recombinant DNA technology, human genes are often transferred into bacteria (prokaryotes) or yeast (eukaryotes). **1 M**
Reason :- Both bacteria and yeast multiply very fast to form a huge population, which express the desired gene.
 - (a) Both assertion and reason are true, and the reason is the correct explanation of assertion
 - (b) Both assertion and reason are true, but reason is not the correct explanation of assertion
 - (c) Assertion is true but reason is false
 - (d) Both assertion and reason are false

- 7 Which of the following can be categorized as a parasite? **1 M**
- (a) A lion hunting a rabbit.
 - (b) An orchid growing on a mango tree.
 - (c) Head lice lives on human scalp and lays eggs on hair
 - (d) The interaction between a sea anemone and clown fish

Section B

16 Marks

16 Marks

- 8 With regard to population growth rate, when resources are limited, it shows logistic growth. Verhulst - Pearl Logistic growth can be represented by the equation $\frac{dN}{dt} = rN\left(\frac{K-N}{K}\right)$. What is represented by the given letters in the equation? **2 M**
- (a) r
 - (b) K
- 9 Which system of our body has similar phenomena of saving memories as in computers, apart from our brain? **2 M**
- 10 A recombinant DNA molecule was created by ligating a gene to a plasmid vector. By mistake, an exonuclease was added to the tube containing the recombinant DNA. How does this affect the rDNA? **2 M**
- 11 Why do the toxic insecticidal proteins secreted by *Bacillus thuringiensis* kill the insect and not the bacteria itself? **2 M**
- 12 If an ecosystem is composed of only three trophic levels, then how much energy will be conserved at the 3rd trophic level? **2 M**

OR

- Why is it desirable to use unleaded petrol in vehicles fitted with catalytic converters? **2 M**
- 13 State Gause's principle of competitive exclusion? How are organisms avoiding this competitive exclusion? **2 M**
- 14 A mixture containing DNA fragments a, b, c and d, with molecular weights of $a+b = c$, $a > b$ and $d > c$ was subjected to agarose gel electrophoresis. What will be the positions of these fragments on the gel after electrophoresis? **2 M**
- 15 MOET programme has helped to increase the herd size of the desired variety of cattle. List the steps involved in conducting the programme. **2 M**

Section C

12 Marks

12 Marks

- 16 With the help of a graph, explain the population growth curve when resources are (i) Limited and (ii) Not limited? **3 M**
- 17 (i) Riya went to the garden to play with her father. After a few minutes, she started sneezing badly and had difficulty breathing. What do you think could be the possible reason? **3 M**
(ii) What will happen if a person does not have a thymus?
- 18 A person is born with a weak immune system. The reason for this is the deficiency of an enzyme. Suggest a technique to completely cure this disease and identify the name of the deficient enzyme. Explain the technique used for the cure? **3 M**
- 19 (i) Why do farmers prefer biofertilizers to chemical fertilisers these days? Explain. **3 M**
(ii) How do Anabaena and mycorrhizae act as biofertilizers?

OR

Consider the following food chains:

3 M

Plants → Mice → Snakes → Hawks

Plants → Mice → Hawks

If energy available at the producer level in both the food chains is 100 J, then in which case will hawk get more energy as food? Justify your answer.