

**MODEL QUESTION PAPER-II (TERM-II ) 2021-22**  
**CLASS-12<sup>th</sup> SUBJECT-BIOLOGY**

**Time : 2 Hrs**

**Max. Marks : 35**

**General Instructions :**

- All questions are compulsory.
- The question paper has three sections and 13 questions.
- Section - A has 6 questions of 2 marks; Section B has 6 questions of 3 marks each; Section- C has a case- based question of 5 marks.
- There is no overall choice. However, internal choice have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- Wherever necessary, neat and properly labeled diagram should be drawn.

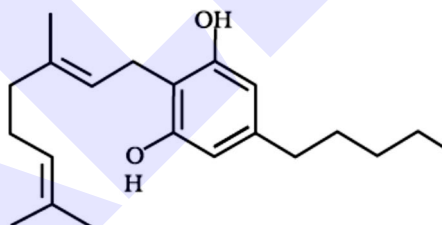
**SECTION – A**

- Certain pathogens are tissue/organ specific. Justify the statement with suitable examples. [2 Marks]
- Name a microbe used for statin production. Write a uses of station. [2 Marks]

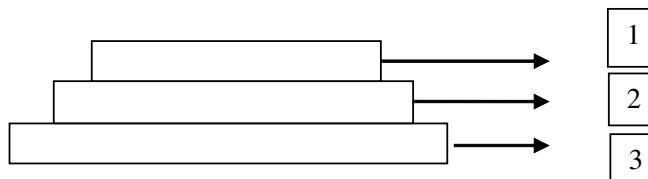
**OR**

Your advice is sought to improve the nitrogen content of the soil to be used for cultivation of a non-leguminous terrestrial crop.

- Recommend two microbes that can enrich the soil with nitrogen.
  - Why do leguminous crops not require such enrichment of the soil? [2 Marks]
- The outline structure of a drug is given below.



- Which group of drugs does this represent?
  - What are the modes of consumption of these drugs.
  - Name the organ of the body which is affected by consumption of these drugs. [2 Marks]
- Why do we prefer to call secondary waste water treatment as biological treatment? [2 Marks]
  - Label the three tiers 1, 2, 3 given in the below age pyramid.
    - What type of population growth is represented by the above age pyramid? [2 Marks]



- What is brood parasitism? Explain with the help of an example. [2 Marks]

**OR**

What is high altitude sickness? Write its symptoms. [2 Marks]

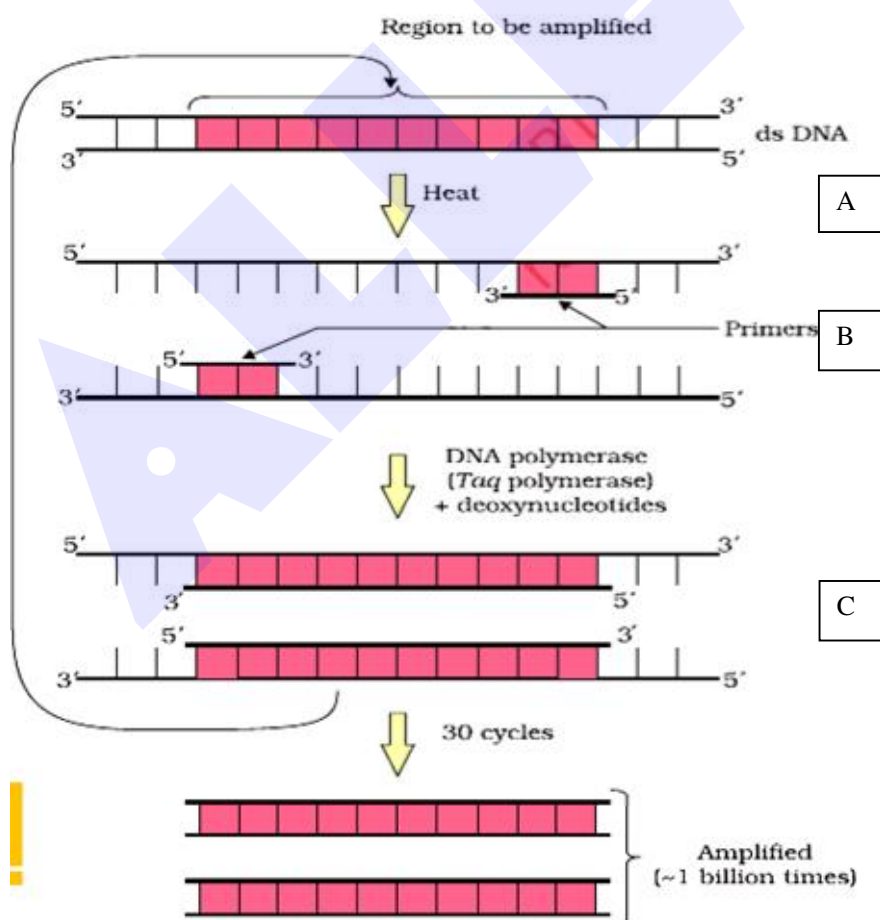
## SECTION-B

7. What is cancer? How is a cancer cell different from the normal cell? How do normal cells attain cancerous nature? [3 Marks]

OR

Prevention is better than cure". Comment. [3 Marks]

8. Many microbial pathogens enter the gut of humans along with food. What are the preventive barriers to protect the body from such pathogens? What type of immunity do you observe in this case? [3 Marks]
9. What does 'H', 'd' and 'III' refer to in the enzyme Hind III? [3 Marks]
10. Can you think of a scientific explanation, besides analogy used by Paul Ehrlich, for the direct relationship between diversity and stability of an ecosystem? [3 Marks]
11. (a) What is the difference between endemic and exotic species? [3 Marks]  
 (b) What is the expanded form of IUCN ?  
 (c) What does 'Red' indicate in the IUCN Red.
12. Identify and explain steps 'A', 'B' and 'C' in the PCR diagram given below. [3 Marks]



**SECTION C**

13. Restriction enzyme digestions are performed by incubating purified DNA molecules with restriction enzyme, at the optimal conditions for that specific enzyme. Agarose gel electrophoresis is employed to check the progression of a restriction enzyme digestion. DNA is a negatively charged molecules. Hence it moves towards the positive electrode. **[5 Marks]**

- (a) There are four DNA fragments size is 2500 bp, 2000 bp, 1500 bp and 1000 bp. Out of these which of the fragment fastly more toward the positive electrode and why ?
- (b) Mention the role of Agarose gel in the electrophoresis process.
- (c) How are the separated DNA fragments are visualised ?
- (d) How the separated DNA fragments are finally isolated ?

**OR**

Recombinant DNA is a technology scientists developed that made it possible to insert a human gene into the genetic material of a common bacterium. This recombinant micro-organism could now produce the protein encoded by the human gene. Imagine if bacterium were available that could make human insulin. We can easily grow a large quantity of the bacteria and make as much insulin we needed. **[5 Marks]**

- (a) What is the main challenge for production of insulin using recombinant DNA technology?
- (b) Insulin used for diabetes was earlier extracted from pancreas of slaughtered animals. What are disadvantages of extracting insulin from such animals.
- (c) How did an American company, Eli Lilly use the knowledge of rDNA technology to produce human insulin?
- (d) Why is the functional insulin thus produced considered better than the ones used earlier by diabetic patients?