0212N904

Candidate's Seat No :_____

B.Sc Sem.-5 Examination

SE 305

Biochemistry (A) - Tech in Biotech (MG)

Time : 2-30 Hours] **December-2024** **[Max. Marks : 70**

Instructions:

1) All Questions are compulsory and carry equal marks

2) Illustrate your answers with neat diagrams wherever necessary

Time: 2. 30 hrs.

Total Marks:70

Q1. (A) Define plasmid. Explain its nomenclature. List the properties of an ideal plasmid vector **(7)**

(B) What is Gene cloning? Explain the steps of gene cloning with a diagram. Give any two applications of Gene cloning. **(7)**

OR

Q1. (A) Write a short note on :1. Restriction Endonucleases 2. Method of transformation in vitro in E. coli cells **(8)**

(B) Explain Replica plating technique&white blue screening to select Recombinants. **(6)**

Q2. (A) Answer Any **Two** of the Following **(14)**

1) Discuss: Sanger's Method for DNA Sequencing.

2) Explain: Southern blotting technique

3) Write Note on: Maxam Gilbert's Method for DNA sequencing.

Q3. (A) Explain in detail the principle, working and applications of PCR. **(14)**

OR

Q3. (A) Write a brief note on any four types or variations of PCR. **(08)**

(B) What are the differences between PCR and Gene cloning? **(06)**

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Q4. (A) Define and explain the process of transformation in bacteria (07)

(B) Explain the process of gene mapping by interrupted conjugation technique (07)

OR

Q4. (A) What is generalized transduction? Explain the process in detail. (07)

(B) Define Hfr.Explain the outcome of cross between F - and Hfr (07)

Q5. **Attempt any Seven out of the following:** (14)

1. What is the role of Cesium Chloride - Ethidium bromide in plasmid purification.
2. How do we measure the purity of DNA concentration in a sample.
3. Define: 1. DNA probe 2. Hybridization
4. What is a cDNA library. Give its advantage.
5. What is the principle of Agarose gel electrophoresis. Name the buffer used in gel electrophoresis for separation of DNA
6. What is Northern Blotting and Western Blotting used for?
7. What is restriction mapping? Give its one use.
8. What is dideoxy nucleotide? What is its significance.
9. Write any two limitations of PCR.
10. Give full form of RT-PCR and it's any one application.
11. Define Recombination.Who discovered the process of bacterial conjugation.
12. What is a basic difference between generalized and specialized Transduction

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B.Sc SEM – 5

Sub: Biochemistry

Paper : Biochemistry Elective [PLANT BIOCHEMISTRY]

Paper ELE: 305

Time :2:00 hours Marks 70

Q.1 Write a brief note on: Vascular and ground tissue system of plant 14

OR

Q.1 Explain in detail plant cell wall formation 14

Q.2 Explain how cyclic and non cyclic photophosphyrylaiton differs from each other ?. 12

Define Photorespiration 2

OR

Q.2. Explain Crassulacean acid metabolism in detial 14

Q.3 a. Describe briefly Sucrose synthesis in plant 10

b How sucrose assimilation is different then nitrogen assimilation 04

OR

Q.3 Define nitrogen assimilation and discuss the fixation of nitrogen by plant 14

Q.4 Write a short note on 14

a. Cytokininn

b. Abscissic aicd

OR

Q.4. a. Explain 10 difference between Salicyclic acid and Jasmonic acid 7

b. Describe briefly on Ethylene 7

Q.5 Attempt Any Seven 14

1. Draw the structure of Merismatic tissue of plant

2. What is the most important function of PS-II ?

3. Give two role of Auxin

4.Why non-cyclic photophosrylation is called Z scheme?

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5.Write the reaction involved in nitrogen fixation

6. What is role of vacoule and endoplasmic reticulum in the plant cell

7. Write 2 role of Pholem in plant

8 Write 2 difference between C 3 and C4 metabolism

9. Draw detail structure of chloroplast

10 How nitrogen assimilation in plant

11.What is effect of Gibberelin in plant

12 . Write a two role cytokinnin in plant

x