

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2022  
(Second Semester)

Branch – FOODS AND NUTRITION

**DISCIPLINE SPECIFIC ELECTIVE – I: BIOTECHNOLOGY**

Time: Three Hours

Maximum: 50 Marks

**SECTION-A (5 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Name the phase of bacterial growth which has maximal rate of growth?  
(i) Lag Phase (ii) Exponential Phase  
(iii) Stationary Phase (iv) Death Phase
- 2 Which of the following does not have the property of production of secondary metabolites?  
(i) Filamentous fungi (ii) Filamentous bacteria  
(iii) Sporing bacteria (iv) Enterobacteria
- 3 Identify the source of Ti plasmid.  
(i) E.Coli (ii) Agrobacterium sp  
(iii) Bacillus sp (iv) Aspergillus sp
- 4 What is required for the transfer of recombinant plasmid into E.Coli cell?  
(i) Heat treatment (ii) UV rays treatment  
(iii) Calcium chloride treatment (iv) Lysis
- 5 Choose the foreign DNA carrying capacity of Plasmid.  
(i) 5-15 kbps (ii) 4.5 kbps  
(iii) 5-15 bps (iv) 4058 bps

**SECTION - B (15 Marks)**

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a) Explain the strain improvement methods.  
OR  
b) Show the general requirements of fermentation process?
- 7 a) Differentiate between primary and secondary metabolites with example.  
OR  
b) Illustrate the production method of lactic acid.
- 8 a) State the characteristics of Ideal cloning vector and highlight on PBR322.  
OR  
b) Organize the role of restriction enzymes in gene cloning.

Cont...

- 9 a) Sketch out the production of lactase enzyme on Industrial level.  
**OR**  
b) Discuss the types and importance of Enzyme Immobilisation.
- 10 a) Outline the uses of Ti plasmid.  
**OR**  
b) Describe the construction of stress tolerance transgenic plants.

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 6 = 30)

- 11 a) Highlight on the different types of fermentation with a suitable sketch.  
**OR**  
b) Enumerate on the applications of fermentation process.
- 12 a) Explain the production of commercially important amino acids.  
**OR**  
b) Elaborate on the production of citric acid and glutamic acid.
- 13 a) Elucidate the lytic and lysogenic pathway of bacteriophage.  
**OR**  
b) Explain the steps followed in gene cloning technique.
- 14 a) Construct a flow chart and explain the steps in Industrial production of Amylase and Protease Enzymes.  
**OR**  
b) Explain the methods of immobilization.
- 15 a) Outline the steps followed in construction of transgenic plants.  
**OR**  
b) Elucidate the application of DNA technology in transgenic plants with reference to - herbicidal resistance and improved storage proteins.

Z-Z-Z

END