

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**MSc DEGREE EXAMINATION MAY 2019
(Second Semester)**

Branch - BIOTECHNOLOGY

CORE ELECTIVE -1: BIOPROCESS BIOTECHNOLOGY

Time: Three Hours

Maximum: 75 Marks

Answer **ALL** questions

ALL questions carry **EQUAL** marks

(2 + 5+ 8)

- 1 a Write note on turbidostatic control.
b Determine the basic principles of scale up.
c Elaborate on fermentor designing and the different types of Airlift, tower and deep jet fermentor.

OR

d What are antifoam agents?
e Discuss the various substrates formulated for industrial fermentation,
f Describe strain development using genetic methods and give its significance.
- 2 a Define the term thermal death kinetics.
b How are products recovered and yield improved?
c Determine the kinetics of batch and fed batch process.

OR

d Write note on crystallization of products.
e Compare and contrast fed batch and continuous process.
f Explain down stream processing by removal of microbial cells and solid matter,
- 3 a What are the sources of Vitamin B12?
b How are solvents ethanol and acetone produced?
c Write a detailed account on production of glutamic acid, lysine and tryptophan.

OR

d Give the industrial use of acetone.
e Write note on production and uses of microbial polysaccharides.
f Illustrate the production of organic acid, citric acid and gluconic acid.
- 4 a Define lipase and give their application.
b How are microbial aminoacids and peptide antibiotics produced?
c Explain the different methods of immobilization of enzymes and their industrial application.

OR

d What are nucleoside antibiotics?
e Demonstrate microbial production of pectinases and lactase. Give their use.
f Describe the microbial production of antibiotics penicillin, cephalosporin and tetracyclins.
- 5 a List the types of bioconversion reactions.
b Illustrate transformation of steroid and non steroid compounds.
c Explain bioremediation and its application.

OR

d Write the flow chart for one microbial biotransformation procedure,
e Analyse the methods for pesticides transformation,
f Elaborate on production of ergot alkaloids and give note on regulation of alkaloid production in cultures.