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Seat No. _____

M. Sc. (Part - II) Examination

April / May – 2003

Microbiology : Paper - IV

(Advances in Microbial Technology)

Time : **3 Hours**]

[Total Marks : **100**

Instruction : All questions carry **equal** marks.

1 Answer any **two** :

- (a) Explain rapid method used for scale-up of sterilization.
- (b) Describe the importance of shake flask and pilot fermentor in scale-up process.
- (c) Discuss the role of precursor and inhibitor addition in the modification of antibiotics.
- (d) What are bioreactors ? Describe principles of their basic design.

2 Write any **two** :

- (a) Describe production of monoclonal antibodies.
- (b) What is a biosensor ? Discuss its applications.
- (c) What is a carrier ? Discuss its role and pre-conditioning in an immobilized system.
- (d) Describe importance of inoculum amount and inoculum type in bioassay.

3 Answer any **two** :

- (a) Describe continuous sterilization process and give its importance.
- (b) Enlist and explain aims and objectives of aeration and agitation.
- (c) What are non-Newtonian fluids ? Describe their role in aeration-agitation.
- (d) Describe solvent extraction methods for the recovery of fermentation products.

4 Write any **two** :

- (a) What are biofertilizers ? Discuss the role of different biofertilizers in sustainable agriculture citing suitable examples.
- (b) Describe mushroom cultivation. Enlist methods used for its improvement.
- (c) What are bioinsecticides ? Give a comprehensive account of the bioinsecticides used in agriculture.
- (d) Discuss the screening of microbes for SCO production. Enlist the efficient producers and advantages of using single cell oil.

5 Answer any **two** :

- (a) Explain need for susceptibility tests and describe recent developments for the same.
- (b) Describe role of biofilm reactors in screening of novel antimicrobial compounds.
- (c) Explain importance of quality control and quality assurance in industry.
- (d) What is a patent ? Discuss in brief the procedure required to have patent of processes and products.
