2017/EVEN/09/28/BTY–403/303

PG Even Semester (CBCS) Exam., May—2017

BIOTECHNOLOGY

(4th Semester)

Course No. : BTYCC–403

(Industrial Biotechnology, Molecular Immunology and Immunotechnology)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. *(a)* Define fermentation. Give the structural details of an industrial fermentor.

(b) What are the different immobilization techniques in enzyme bioprocessing?

(c) Chalk out the steps of industrial production of ethanol schematically. 5+5+4=14

OR

2. *(a)* Differentiate between upstream and downstream processing.

(b) Give a brief account of the production, optimization and screening of microbes for industrial processes.

(c) Write a note on the large-scale production of antibiotics. 4+6+4=14

3. *(a)* What do you mean by the conventional treatment of industrial effluents?

(b) Give the kinetics of waste bio-degradation by aerobic treatment.

(c) Chalk out the harmful effects of industrial wastes on humans. 5+5+4=14

OR

4. Define GMOs. Briefly discuss their role in mitigating food shortage. 2+12=14

5. *(a)* What is affinity maturation?

(b) Discuss the steps of B-cell maturation and development.

(c) What is clonal anergy? 5+6+3=14

OR

6. Write short notes on the following : 7+7=14

(a) Bone marrow chimera

(b) Monoclonal antibodies

7. Write brief accounts on the following : 7+7=14

(a) Knockout technology

(b) SCID mice

OR

8. *(a)* Briefly write about vaccine development.

(b) Give a short account of the animal models used in immunological studies.

7+7=14

9. Chalk out the pathway of DNA vaccine production. 14

OR

10. Write short notes on the following : 7+7=14

(a) Immunodiagnostic techniques

(b) Whole-organism vaccines

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