2018

PG Even Semester (CBCS) Exam., May—2018

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)* What are upstream processing, fermentation and downstream processing?

(b) Describe the steps of industrial production of organic acids. 6+8=14

OR

2. *(a)* What is enzyme immobilization? Briefly comment on the different techniques of enzyme immobilization.

(b) With the help of a schematic representation, show the different parts of a bioreactor. 9+5=14

3. *(a)* Briefly chalk out the steps of waste biodegradation.

(b) Can industrial waste be converted into useful energy? Briefly comment. 8+6=14

OR

4. *(a)* Differentiate between conventional and industrial treatments of factory effluents.

(b) Write a brief note on GMOs. 7+7=14

5. *(a)* What is autoimmunity? Citing examples, discuss the mechanism of a systemic and an organ-specific auto-immune disorder. 8

(b) Write short notes on the following : 3+3=6

(i) Monoclonal antibodies

(ii) Cytokines

OR

6. Write short notes on the following : 3½×4=14

(a) Affinity maturation

(b) Tolerance

(c) Molecular mimicry

(d) Clonal energy

7. *(a)* Chalk out the steps of vaccine development in the post-genomic era. 8

(b) Write short notes on the following : 3+3=6

(i) Antibody engineering

(ii) Phage display

OR

8. *(a)* Write brief accounts on the following : 4+4=8

(i) Nude mice

(ii) SCID mice

(b) What are chimeric antibodies? 6

9. Write a brief comment on the large-scale manufacture of antibodies. 14

OR

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

(a) Polyvalent vaccines

(b) DNA vaccines

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