2013

P.G. Diploma in

Quality Control and Assurance in Microbial Technology

PAPER—MT-102

Full Marks : 50

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Write the answers of each question of each Group in Separate Book.

Answer any *Five* Questions from Each Group.

Group—A

[Marks—25]

Answer any *five* questions.

1. With figure describe the working of a batch fermentor. 5

2. Briefly highlight the industrial production of citric acid. 5

3. Write notes on (any *two*) : 2×2.5

   (a) Antibiotics with their mode of actions;

   (b) Steroids;

   (c) Gluconic acid production.

4. Briefly trace the path of vitamin A production. 5

5. State the mode of action of the following : 2.5×2

   (a) Amylase;

   (b) Cellulase.

6. Mention the desired characteristics of an industrial microorganism. Illustrate the various approaches used for strain improvement. 5

7. Briefly describe the various steps of production of wine. What is mallulytic fermention ? 4+1

8. Distinguish between the following (attempt any 2) : 2×2.5

   (a) Primary metabolite and secondary metabolite from microbial source.

   (b) Submerged and solid-state fermentation process.

   (c) Up-stream and Down stream process.

Group—B

[Marks—25]

Answer any *five* questions.

1. What are monoclonal antibodies ? Briefly explain the method for the production of monoclonal antibodies. 1+4

2. Write about the microbial degradation of sewage. Narrate in short the procedure of methane production. 2+3

3. Distinguish between any *two* of the following : 2×2.5

(a) hn RNA & si RNA;

(b) Prokaryotic and Eukaryotic protein expression system.

(c) Southern and Northern blot.

4. Write notes on any *two* : 2×2.5

(a) Bioremediation;

(b) Gene therapy;

(c) Stem cells.

5. (a) Write 5 different criteria to be a good vector. 1.5

(b) Write down the name source of three type II restriction enducleases. 1.5

(c) Why genomic DNA is being in completely digested with restriction endonuclease during genomic DNA library ? 1

(d) What two drug resistant genes such as amp^r and $G418^r$ gene are present in modern eukaryotic vector ?

6. Elucidate the relative advantages and disadvantages of using microbial and cell-culture systems for production of recombinant proteins. 5

7. State the differences between inductible and constitute-gene expression system with examples. 5

8. Highlight the major features of contamination and its control in industrial laboratories and biotech sectors considering safety, health and environment. 5

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