2016

P.G. Diploma Examination in Quality Control and Assurance in Microbial Technology

1st Semester Examination

PAPER—QUA-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.

Group—A

[*Marks : 25*]

Answer any *five* questions.

1. Why industrial strain development is necessary ? How will you isolate amylase producing bacteria from soil ? Write the name of one microgram employed in the industrial production of α-amylase. 2+2+1

2. Write the down-stream processing of the following products to purify them (any *two*) : 2×2.5

   (a) Protease ; (b) Glutamic Acid ;

   (c) Lysine.

3. Differ between batch and fed-batch culture. Write the name of two antibiotics produced industrially alongwith the micro-organism involves in the production. What do you mean by fermentation scale-up ? 2+2+1

4. Write short note on (any *two*) : 2×2.5

   (a) Packed bed bioreactor ;

   (b) Selective media ;

   (c) Stirred tank bioreactor.

5. Write the name of the substrates and organism involves in the industrial production of :

   (a) Ethanol ;

   (b) Cellulose ;

   (c) Citric acid ;

   (d) Steroids.

   What is antifoam agent and why it is used ? (4×1)+1

6. Write the application of (a) Amylase, (b) Vitamin-C. What do you mean by Slater Culture ? (2+2)+1

7. How will you formulate media for large scale production of acetic acid ? State the effect of medium pH on the yield of acetic acid. 3+2

8. Differ between primary and secondary metabolites. Write a short note on any fermented milk products. 2+3

Group—B

[*Marks : 25*]

Answer any *five* questions.

1. What is the importance of Molecular biology based techniques in Quality Control ? Give two examples that are applied successfully. 3+2

2. How can you produce monoclonal antibody ? State the difference between monoclonal and polyclonal antibodies. 3+2

3. (a) What do you mean by recombinant DNA technology ?

(b) Mention a product produced successfully through r.DNA technology. 3+2

4. Define Cloning. Mention the basic requirements for successful cloning technology in bacteria. 2+3

5. What do you mean by si RNA ? How can this technology be supplied in gene silencing ? 2+3

6. What do you mean by sewage treatment ? Elucidate the needs of CETP in the modern industrial set up. 2+3

7. (a) What are the restriction enzymes ? Why are they so named ?

   (b) Illustrate important applications of restriction enzymes.

   (1+1)+3

8. (a) What is meant by gene therapy ?

   (b) Briefly discuss the working principle and ethical issues.

   1+(2+2)

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