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UG/5th Sem/Micro(H)/T/19

2019

B.Sc. (Honours)

5th Semester Examination

MICROBIOLOGY

Paper - C11T

(Industrial Microbiology)

Full Marks : 40

Time : 2 Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

1. Answer any *five* questions from the following.

5×2=10

- (a) What is GRAS organism ?
- (b) State differences between solid state and liquid state fermentation.
- (c) Write the importance of seed culture.
- (d) Write the name of two antifoam agents.

[Turn Over]

(2)

- (e) What is fed-batch fermentation ?
- (f) What is growth factor ?
- (g) What are primary metabolites and secondary metabolites ?
- (h) State the principle of lyophilization.

Group - B

2. Answer any *four* questions from the following.

4×5=20

- (a) Draw the diagram of a typical bioreactor and label each parts.
- (b) Schematically represent the industrial production process of ethanol.
- (c) What is corn steep liquor ? How it is important in fermentation media ? What is aspect ratio of a fermenter ?
2+2+1
- (d) Describe the methods used for the preservation of industrial strains. Give example of two immobilizing agents.
3+2
- (e) Briefly describe citric acid recovery process from fermentation media. Write the spray drying method to purify the fermenting product. 3+2

(3)

- (f) What is semi-synthetic penicillin ? Give example.
Write three salient features of an ideal industrial strain ?
1+1+3

Group - C

3. Answer any *one* question from the following.

1×10=10

- (a) What is enzyme immobilization ? Mention the processes of enzyme immobilization and describe. State the advantages of enzyme immobilization.

2+5+3

- (b) How temperature and pH within a fermenter can be controlled ? How centrifugation helps in recovery of an industrial product ? For recovery of which product cell disruption is necessary ?

(3+3)+3+1
