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SEAT No. :

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P698

[5217] - 401

T.Y.B.Sc.

BIOTECHNOLOGY

Bb-341: Large Scale Manufacturing Process

(2013 Pattern) (Semester - IV)

Time : 3 Hours]

[Max. Marks :80

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Draw neat labelled diagram wherever necessary.*
- 3) *Figures to the right indicate full marks.*

Q1) Answer the following in 2-3 lines

[10×2=20]

- a) Define fermentation. Enlist any two types.
- b) Explain secondary screening.
- c) What are the analogue resistant mutants used in strain improvement?
- d) Comment on 'Antifoaming agents'.
- e) Describe media used for animal cell culture.
- f) Explain the term 'Thermal Death time'.
- g) Comment on - precipitation.
- h) Explain - Scale down.
- i) What are seals? Enlist their types.
- j) Enlist basic objectives in developing economically viable process.

Q2) Write short note on (Any three):

[3×5=15]

- a) Air lift fermentor.
- b) Impellar and its types.
- c) Standard operating practices (SOP)
- d) AMES test.

P.T.O.

Q3) Attempt any three from the following:

[3×5=15]

- a) Explain - plant cell Bioreactor.
- b) Describe pH control in fermentation process.
- c) Explain single cell protein.
- d) Comment on drum drying and spray drying.

Q4) a) What is biotransformation? Comment on Ascorbic acid biotransformation and its applications. **[7]**

OR

What is $K_L a$? Describe concept and importance of $K_L a$ value.

- b) Give the principle of centrifugation. Describe any two types of centrifuges used in the industry **[8]**

OR

Explain in brief Bubble column and Bubble cap bioreactors.

Q5) Explain in brief measurement and control of following bioprocess parameters.

- a) Temperature
- b) Dissolved oxygen
- c) Microbial Biomass

OR

Elaborate large scale manufacturing process of penicillin with respect to producer organism, inoculum development, production medium and product recovery. **[15]**

