Total No. of Questions :5]

SEAT No. :

P376

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F.Y.B.Sc. (Vocational)

INDUSTRIAL MICROBIOLOGY

Microorganism and Systems for Fermentation Processes (Paper - I)

(2013 Pattern) (Theory)

Time : 3 Hours] *[Max. Marks :80*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***All questions carry equal marks.***
4) ***Draw neat labelled diagrams wherever necessary.***
5) ***A calculator is allowed.***

Q1) Answer each sub-question in one or two lines; Fill in the blanks: **[16]**

a) Define 'Precision'.

b) What is a process flow diagram?

c) Why Reynolds number is dimensionless quantity?

d) What is crippled strain?

e) Streptomyces are important fungi employed in fermentation industry to produce antibiotic streptomycin. (True/False).

f) State use of specific gravity in the fermentation industry.

g) What is enrichment culture?

h) Define, 'Yield'.

Q2) Attempt any four of the following: **[16]**

a) Give an account of aseptic and non-aseptic fermentations.

b) Justify "Under certain circumstances it may be prudent not to patent invention at all, but to maintain the discovery as a trade secret".

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c) Draw a detailed flowchart for the production process in a typical industrial microbiology establishment.

d) What is strain improvement? What are the two strategies for strain improvement?

e) List five names of microorganisms and fermentation product produced by them.

f) The radius of the given fermenter is 16 inches and length is 184 inches. Calculate the aspect ratio and volume of the ferementer. (Given Π = 3.14)

Q3) Write short note on any four of the following: **[16]**

a) Temperature scales.

b) Actinomycetes.

c) Use of Term 'Fermentations'.

d) Upstream process.

e) Dimensional homogeneity of equation.

f) Error types.

Q4) Answer any two of the following: **[16]**

a) Describe the process of development of pharmaceutical product.

b) Explain the WHO's classification of microorganisms on the basis of hazards and containment levels.

c) Describe the culture collection with respect to types, handling and methods of preservation of microorganisms.

d) Find the mean, standard deviation and variance for fermentation product yield in mg/L: 10.5; 15.5; 17.5;19.5; 20.5; 13.5; 12.5; 10.5; 16.6; 22.5.

Q5) Answer any one of the following: **[16]**

a) Explain the components of a modeling and process of choosing control region for modeling purpose.

b) Describe the linear and non linear models of data analysis.

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