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AR – 552

Third Semester B. Sc. (Part - II) Examination

3S : INDUSTRIAL MICROBIOLOGY

(Industrial Fermentation, Metabolism and Bioinstrumentation)

P. Pages : 6

Time : Three Hours] [Max. Marks : 80

Note : (1) All questions are compulsory.
(2) Draw diagrams wherever necessary.

1. (A) Fill in the blanks. (½ Mark each)

   (i) The organism used in the production of tetanus toxoid is _____ .

   (ii) Salk vaccine is _____ vaccine.

   (iii) The long form of TCA cycle is _____ .

   (iv) Enzyme is _____ in nature. 2

   (B) Choose correct alternative. (½ Mark each)

   (i) _____ is an example of symbiotic nitrogen fixing organism.

   (a) Azotobacter

   (b) Rhizobium

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(c) Proteus

(d) E-coli

(ii) _____ is an organism which is used in the production of beer.

(a) S. Cerevisiae

(b) Pro. Vulgaris

(c) E-coli

(d) B. Subtilis

(iii) Ethyl alcohol is produced by using _____ as a raw material.

(a) Molasses

(b) Proteins

(c) Lipids

(d) Aminoacids

(iv) _____ is a key enzyme in electron transport chain.

(a) Cytochrome oxidase

(b) Amylase

(c) Lipase

(d) Insulin 2

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(C) Answer in **one** sentence each :—

(i) Define chromatography.

(ii) Name the organism used in the industrial production of acetic acid.

(iii) Define vaccine.

(iv) Give two examples of biofertilizers. 4

2. (a) Explain Nomenclature of enzymes. 4

(b) What is metabolism? Enlist different enzymes involved in TCA cycle. 4

(c) Explain :-

(i) Glycolysis.

(ii) Allosteric site. 4

OR

(d) Differentiate between Batch and continuous fermentation. 4

(e) Draw EMP pathway. 4

(f) Describe the terms :
Co-enzyme and co-factor. 4

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3. (a) Explain biological pest control with suitable examples. 4

(b) Discuss any one method in brief for production of biofertilizer using bacteria. 4

(c) Explain single cell protein. 4

OR

(d) Explain recovery process of yeast biomass from fermented media. 4

(e) Differentiate between chemical fertilizers and biofertilizers. 4

(f) Explain :-

(i) Microbial insecticide.

(ii) Biomass. 4

4. Explain the industrial process for manufacture of wine by fermentation in detail. 12

OR

Describe in detail industrial production of fungal amylase. 12

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5. (a) What is significance of adsorption in purification process ? Explain. 4

(b) Explain methods of cell disruption. 4

(c) Explain the role of centrifugation in solid liquid extraction. 4

OR

(d) Discuss the evaporation method. 4

(e) Draw the flow sheet diagram of downstream processing. 4

(f) Explain formulation in brief. 4

6. Describe in detail industrial production of Fungal Amylase. 12

OR

Define vaccine. Explain in detail industrial production of B.C.G. vaccine. 12

7. (a) Define spectroscopy. Give applications of UV spectroscopy. 4

(b) Discuss the principle of Thin layer chromatography. 4

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(c) Give the applications of paper electrophoresis. 4

OR

(d) Define Beer and Lambert's Law. 4

(e) Give the principle of Gel electrophoresis. 4

(f) Discuss the applications of paper chromatography. 4

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