

AP-410

B.Sc. (Part-I) Semester-I Examination
1S : INDUSTRIAL MICROBIOLOGY
(Fundamentals of Industrial Microbiology)

Time—Three Hours]

[Maximum Marks—80

- N.B. :**
- (i) Question No. 1 is compulsory and carries 8 marks without any alternate choice.
 - (ii) Question Nos. 2 to 7 carry equal marks with internal alternate choice.
 - (iii) Illustrate your answer with neat and labelled diagram wherever necessary.

1. (a) Fill in the blanks :

- (i) Yeasts that are used for alcohol production belong to the genus _____.
- (ii) To prove a specific cause of a particular disease is known as _____ postulates.
- (iii) A culture of microorganism in which all the cells have been derived from the same parent cells is called as _____ culture.
- (iv) _____ oil is used for observing bacteria under oil immersion lens.

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(b) Choose correct option :

- (i) In Gram staining safranin is used as ____.
- (a) Primary stain (b) Counter stain
(c) Mordant (d) Decolourizing agent
- (ii) In fermentation process pH of the medium is measured by ____.
- (a) Autotitrater (b) Impeller
(c) Aerating device (d) Heat exchanger
- (iii) Autoclave is used for sterilization having temperature ____.
- (a) 100°C (b) 121°C
(c) 131°C (d) 140°C
- (iv) Bacteriophage is a ____.
- (a) Bacteria (b) Virus
(c) Fungi (d) Protozoa

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(c) Answer in **one** sentence :

- (i) Define Fermentation
(ii) Define Antibiotics
(iii) Define Synchronous Culture
(iv) Define Inoculum.

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7. (a) Describe in brief cold sterilization. 4
(b) What do you mean by industrial sterilization? 4
(c) What are the advantages of continuous sterilization? 4

OR

- (d) Explain the principle of sterilization. 4
(e) Enlist the method of sterilization used in fermentation industry. 4
(f) Describe in brief sterilization of Production Media. 4

2. (a) Give any eight harmful activities of microorganisms. 4

(b) Define the terms :

(i) Medical Microbiology

(ii) Industrial Microbiology. 4

(c) Explain in brief Pickles production. 4

OR

(d) Define antibiotics and give any four examples. 4

(e) Define the terms :

(i) Genetic Engineering

(ii) Food Microbiology. 4

(f) Give any eight beneficial activities of microorganisms. 4

3. Describe in detail the effect of temperature, heavy metals and U.V. light on the growth of microorganisms. 12

OR

Define the growth, and describe in detail synchronous culture and continuous culture. 12

4. (a) Describe in brief Secondary Screening. 4
(b) Describe in brief maintenance of pure culture. 4
(c) Describe in brief production of strain in Industry. 4

OR

- (d) Describe in brief pour plate method for isolation of pure culture. 4
- (e) Auxanographic technique of Primary Screening. 4
- (f) Describe in brief antibiotics and antibiotic producing microorganism with example. 4
5. (a) Define the terms :
- (i) Molasses
- (ii) Inoculum. 4
- (b) Discuss the Precursor and their role in fermentation. 4
- (c) Discuss the antifoam agent and their role in fermentation industry. 4

OR

- (d) Define the terms :
- (i) Chemotrophs
- (ii) Precursor. 4
- (e) Discuss in brief various types of raw material used in fermentation industry. 4
- (f) Discuss in brief inoculum build-up. 4
6. What is axenic culture ? Describe in detail continuous fermentation with suitable examples. 12

OR

What do you mean by mixed culture ? Describe in detail Batch fermentation with suitable examples. 12