

**KNT/KW/16/5121**

**Bachelor of Science (B.Sc.) Semester–III (C.B.S.) Examination**

**MICROBIOLOGY**

**Paper — II**

**(Industrial Microbiology)**

Time : Three Hours]

[Maximum Marks : 50

**N.B. :—** (1) All questions are compulsory and carry equal marks.

(2) Draw well labelled diagrams and give examples wherever necessary.

1. Describe various methods of primary screening. 10

**OR**

Define strain improvement. Describe various methods of strain development. 10

2. Draw well labelled diagram of a typical fermentor and describe different parts of fermentor. 10

**OR**

Explain different fermentation processes. Describe the various factors affecting fermentor design. 10

3. (a) Describe inoculum development. 5

(b) Describe scale-up of fermentation process. 5

**OR**

(c) Enlist various methods of harvesting. Describe any two methods. 5

(d) Describe briefly various sources of nitrogen used for media preparation. 5

4. (a) What are advantages and disadvantages of scp ? 2½

(b) Give the flow sheet diagram of ethanol production. 2½

(c) Describe the production of vit. B<sub>12</sub>. 2½

(d) Describe the different types of wines. 2½

**OR**

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| (e) Give the flow sheet diagram of citric acid production.      | 2½ |
| (f) Discuss the significance of hop flowers in beer production. | 2½ |
| (g) Write a note on mashing.                                    | 2½ |
| (h) Explain recovery and purification of penicillin.            | 2½ |

5. Solve any **ten** :

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| (i) What is secondary screening ?  | 1 |
| (ii) Name the method used for sterilization of heat labile components of media.      | 1 |
| (iii) Give two examples of industrially important fungi and their products.          | 1 |
| (iv) Give two examples of antifoam agents.   | 1 |
| (v) Write any two buffers used in industrial fermentations.                          | 1 |
| (vi) What are chelating agents ? Give one example.                                   | 1 |
| (vii) What is the significance of pilot plant fermentor in scale-up studies ?        | 1 |
| (viii) What is the role of stimulators used in media preparation ? Give one example. | 1 |
| (ix) What are black strap mollasses ?  | 1 |
| (x) What is azeotropic mixture ?   | 1 |
| (xi) Name any two microorganisms used in baker's yeast production.                   | 1 |
| (xii) What are semi synthetic penicillins ?  | 1 |