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**NY—40—2023**

**FACULTY OF SCIENCE**

**M.Sc. (Second Year) (Fourth Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2023**

**(New/CBCS Pattern)**

**MICROBIOLOGY**

**Paper—XVI (MB—401)**

**(Fermentation Technology)**

**(Wednesday, 6-12-2023)**

**Time : 2.00 p.m. to 5.00 p.m.**

*Time—3 Hours*

*Maximum Marks—75*

*N.B. :— (i) All questions carry equal marks.*

*(ii) All questions are compulsory.*

*(iii) Represent your answer with scheme and figure where necessary.*

1. Describe in detail industrial production of  $\alpha$ -amylase. Add a note on industrial application of same. 15

*Or*

Describe in detail production of distilled and undistilled alcoholic beverage.

2. Explain in detail fermentative production of Vitamin B<sub>12</sub>. 15

*Or*

Take a detailed account of microbial production of penicillin.

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3. Describe in detail production of biofertilizer and add a note on its importance. 15

Or

Take a detailed account of microbial production of first generation ethanol.

4. What is IPR ? Write in detail on IPR. Add a note on obligation with patent. 15

Or

Write in brief on :

(a) Enzyme immobilization methods

(b) Application of enzyme immobilization.

5. Write short notes on (any *three*) :

15

(a) Wine fermentation

(b) Biomethanation

(c) SCP

(d) Copyright

(e) Plant breeder's right.

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