

VI Semester B.Sc. Examination, May 2016
(F + R) (F – 70-2013-14 and Onwards/R – 60-Prior to 2013-14)
BIOTECHNOLOGY (Paper – VIII)
Industrial Biotechnology

Time : 3 Hours

Max. Marks : 70/60

Instructions : 1) Draw diagrams *wherever necessary*.

2) **70** marks for students of **2013-14** batch Onwards.

3) **60** marks for repeaters Prior to **2013-14** batch.

4) Section – **D**, question **IV** is **compulsory** for students of **2013-14** batch Onwards.

SECTION – A

I. Write short notes on the following :

(5×2=10)

- 1) Lyophilization
- 2) Hops
- 3) SCP
- 4) Immobilization
- 5) Membrane bioreactor.

SECTION – B

II. Answer **any four** of the following :

(4×5=20)

- 6) Briefly explain the process of production and recovery of penicillin.
- 7) Write a note on the importance of microbial enzymes in food and beverage industry.
- 8) Describe the industrial strain improvement by rDNA method.
- 9) Explain in brief the steps involved in the recovery of fermentation products.
- 10) Write a note on microbial polysaccharides.

P.T.O.



SECTION - C

III. Answer **any three** of the following : (3×10=30)

- 11) Give a detailed account of the importance of media component and its formulation in fermentation.
- 12) Explain the salient features of surface, submerged and solid state fermentation. Add a note on their advantages and limitations.
- 13) Write a detailed account of the production of various food additives.
- 14) Describe the different steps involved in the industrial production of citric acid.
- 15) What are fermented foods ? Explain the production of Yoghurt and Cheese.

SECTION - D

(For Students of 2013-14 batch Onwards)

IV. Answer the following in one **word** or a **sentence** each : (10×1=10)

- 16) What are steroid hormones ? Give an example.
- 17) What is flash pasteurization ?
- 18) Mention two raw materials for ethanol production.
- 19) What is dual fermentation ?
- 20) Mention one organism used in industrial production of Vit. B₁₂.
- 21) What is Idiophase ?
- 22) Which one of the following is called as the 'brewers yeast' ?
 - a) Saccharomyces ludwigi
 - b) Saccharomyces cerevisiae
 - c) Saccharomyces boulardii
 - d) Saccharomyes pastorianus.
- 23) Which of the following is used for agitation in a fermentor ?
 - a) Impeller
 - b) Baffles
 - c) Sparger
 - d) None of these
- 24) Lagers are the beer in which fermentation is carried out using
 - a) Top yeast
 - b) Bottom yeast
 - c) Middle yeast
 - d) None of these
- 25) The germination of barley Kernels under controlled temperature and humidity to generate enzymes for the degradation of starch and protein is known as
 - a) Brewing
 - b) Malting
 - c) Mashing
 - d) Pitching