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SEAT No. _____

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SARDAR PATEL UNIVERSITY
M. Sc. Integrated Biotechnology (IG-IBT) 8th Semester
Theory Examination – March 2019
PS08CIGIB2 – Biotechnology of Fermentation & Biotransformation – I
22nd March 2019 (Friday), 2:00 pm to 5:00 pm

Maximum Marks: 70

Note: (1) All the Questions are compulsory. (2) Figures on the right indicate marks.

Q.1. Choose the correct option

1 × 8 = 8

- (i) Which of the following is the traditional SCP.
- [A] *Pruteen* [B] *Spirulina*
[C] *Dunaliella* [D] *Chlorella*
- (ii) Alginate is a/an _____.
- [A] Homopolysaccharide [B] Branched cationic polysaccharide
[C] Neutral polysaccharide [D] Anionic heteropolysaccharide
- (iii) _____ is the one that has been most extensively studied for PHAs production.
- [A] *Lactobacillus bulgaricus* [B] *Cupriavidus necator*
[C] *Bacillus subtilis* [D] *E. coli*
- (iv) The malolactic fermentation undertaken by lactic acid bacteria (LAB) in wine fermentation is not due to _____.
- [A] *Oenococcus oeni* [B] *Acetobacter aceti*
[C] *Various spp. of Lactobacillus* [D] *Pedicoccus*
- (v) Which of the following is a branched polymer?
- [A] Amylose
[B] Amylopectin
[C] Cellulose
[D] Alginate
- (vi). Ergot alkaloids are formed in _____.
- [A] Conidial stage
[B] Sphacelial stage
[C] Sclerotium like stage
[D] None of these
- (vii). Microbial rennet produced by _____.
- [A] *Mucor miehei* [B] *Penicillium chrysogenum*
[C] *Bacillus megaterium* [D] None of these
- (viii). Basidiocarp consists of a fleshy stalk called _____ and umbrella like head born on its top called _____.
- [A] Hyphae and Seta [B] Stipe and pileus
[C] Seta and Annulus [D] Annulus and Antheridia

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(P.T.O.)

- Q.2. Attempt any Seven of the following 2 × 7 = 14
- (a) What are the main advantages of osmotolerant yeasts for glycerol production?
 - (b) Enlist the therapeutic uses of Ergot alkaloids.
 - (c) What is stuck fermentation?
 - (d) What are psychrotropic and thermophilic bacteria?
 - (e) Define the term MEOR.
 - (f) What are oleaginous microorganisms?
 - (g) What is 'pitching' during beer production?
 - (h) What are the economic significance of Vitamin B₁₂?
 - (i) Write general characteristics of starter culture.
- Q. 3. [A] Discuss in detail the microbial production of bioplastics. [06]
 [B] Describe in detail microbial fermentation of acetone/ butanol. [06]
- OR
- Q. 3. [B] Explain in detail the fermentative production of xanthan. [06]
- Q. 4. [A] Explain in detail: Malting and mashing during beer making. [06]
 [B] Enlist various types of SCP and describe production of any one. [06]
- OR
- Q. 4. [B] Write down the significance and explain the production process of SCO. [06]
- Q. 5. [A] Explain in detail the fermentative production of Vitamin B₂. [06]
 [B] Explain the various factors affecting production of ergot alkaloids. [06]
- OR
- Q. 5. [B] Describe in detail the fermentative ethanol production. [06]
- Q. 6. [A] Neatly narrate flow diagram for yoghurt making and explain the fermentation step. [06]
 [B] Enlist and explain different techniques used for control of microorganism in milk. [06]
- OR
- Q. 6. [B] Define the terms Prebiotic and Probiotic and describe in detail health benefit of Prebiotic. [06]

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