



**GAD-2339**

Seat No. \_\_\_\_\_

**B. Sc. (Sem. V) (Biotechnology) Examination**

November / December – 2013

**Elective Paper - III Industrial Biotechnology**

Time : 3 Hours]

[Total Marks : 50

1 Answer the following : (any ten) 10

- (1) What is agar ?
  - (a) A nutrient
  - (b) Vitamins
  - (c) A solidifying agent
  - (d) Broth
- (2) What is an enrichment culture ?
  - (a) Something that provides growth for all microorganisms.
  - (b) Something that inhibits growth for all microorganisms.
  - (c) An infectious culture
  - (d) Something that provides growth for a certain microorganism but not for others.
- (3) Fermentation is the
  - (a) production of alcoholic beverages by microorganisms.
  - (b) Mass, controlled culture of microbes to synthesize products.
  - (c) Use of microbes in sewage and pollution control
  - (d) all of the above

- (4) The temperature of a liquid Nitrogen for storage of microbial culture is
- (a)  $-196^{\circ}\text{C}$
  - (b)  $-35^{\circ}\text{C}$
  - (c)  $-78^{\circ}\text{C}$
  - (d) None of these
- (5) Industrial microbiologists use "tricks" to increase the amount of chosen end product; this may include
- (a) manipulating the growth environment
  - (b) using small scale containers to concentrate production
  - (c) selecting microbial strains that lack a feedback system
  - (d) (a) and (c).
- (6) Different methods of strain improvement are :
- (a) Protoplast fusion
  - (b) recombination
  - (c) Mutation
  - (d) All of these
- (7) Name the microorganisms used to produce Vitamin B<sub>12</sub>.
- (8) The term anaerobic means
- (a) without bacteria
  - (b) without CO<sub>2</sub>.
  - (c) without ATP.
  - (d) without O<sub>2</sub>.
- (9) Basic principle in industrial microbiology is
- (a) Suitable growth conditions
  - (b) Fermentation
  - (c) Providing aseptic conditions
  - (d) All of these

- (10) Industrially important Antibiotic producing organisms shall be isolated by
- Disk plate method
  - Direct plate method
  - Serial dilution method
  - Crowded plate method
- (11) The technique used for isolation of Auxotrophic mutant
- Replica plate method
  - Enrichment method
  - Penicillin selection method
  - All of these

2 Answer the following : (any five) 10

- Define Fermentation.
- Define Biotechnology.
- Which bacteria is used to produce L-Lysine ?
- What is the another name of citric acid ?
- Give the type of Amylase.
- What is Mushroom ?

3 Answer the following : (any four) 20

- Discuss microbiology of protease production.
- Discuss Applications of Proteases.
- Explain the Mushrooms.
- Discuss microbiology of SCP.
- Explain Recovery of Vitamin B<sub>12</sub> fermentation.
- Discuss microbiology of citric acid.

4 Answer the following : (any one)

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- (1) Fermentative production of citric acid.
  - (2) Write a note on streptomycin production.
  - (3) Discuss fermentative process of Vitamin B<sub>12</sub>.
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