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SARDAR PATEL UNIVERSITY
M. Sc. INDUSTRIAL BIOTECHNOLOGY THIRD SEMESTER EXAMINATION
Date: 29-11-2012

PS03CIBTD1; MICROBIAL BIOTECHNOLOGY

TIME: 2.30 TO 5.30 P.M.

MAX.MARKS: 70

Q-1 Select most appropriate answer from the given choices.

(08)

- 1 Gelling property of alginate depends on...
 - a) Guluronic acid content
 - b) Molecular weight
 - c) Mannuronic acid content
 - d) None of the above
- 2 Heterofermentative lactic acid bacteria metabolise glucose by.....
 - a) EMP pathway
 - b) Tagatose pathway
 - c) Leloir pathway
 - d) Phosphoketolase pathway
- 3 Which of the following enzyme release maltose from starch?
 - a) α amylase
 - b) β amylase
 - c) Amyloglucosidase
 - d) All of the above
- 4 Which of the following organism is used for industrial production of riboflavin?
 - a) *Bacillus subtilis*
 - b) *Propionibacterium shermanii*
 - c) *Corynebacterium glutamicum*
 - d) None of the above
- 5 A microbial flavor - Methyl ketone is synthesized from.....
 - a) Citric acid
 - b) Fatty acids
 - c) Amino acid
 - d) None of the above
- 6 Which of the following is not a phytosterol?
 - a) Sitosterol
 - b) Stigmasterol
 - c) Cholesterol
 - d) All of the above
- 7 Which of these additive is used to enhance elasticity of wheat dough for bread making?
 - a) Sodium propionate
 - b) Potassium bromate
 - c) Cysteine
 - d) None of the above
- 8 Ergot oil of sclerotia contains high amount of.....
 - a) Lysergic acid
 - b) Ricinoleic acid
 - c) Paspalic acid
 - d) All of the above

Q-2 Answer any seven short questions. (14)

- a) Enlist the desirable properties of baker's yeast.
- b) What is spawn? How is it prepared?
- c) Explain the mode of action of streptomycin.
- d) Neatly narrate the structure of penicillin G.
- e) Explain the role of microbial proteases in leather processing.
- f) Define the term : "Pseudoplastic flow"
- g) Explain the biological value of single cell protein.
- h) Explain the major changes occurring during ripening of green cheese.
- i) Enlist the major reactions / changes occurring during baking of bread dough.

Q-3 Write the biological functions of exopolysaccharides in microorganisms and explain a biosynthetic pathway for microbial exopolysaccharide. (06)

A
Q-3 Explain the importance and biochemistry of 11 α hydroxylation and 1 dehydrogenation of steroids. (06)

B

OR

Write in detail on sources of rennet for cheese making and their functions in cheese manufacture. (06)

Q-4 Discuss the factors regulating saprophytic production of ergot alkaloids. (06)

A

Q-4 Explain the fermentation and coagulation of milk during yoghurt making. (06)

B

OR

Write the functions and narrate biosynthetic pathway of vitamin B12. (06)

Q-5 Describe the recovery of penicillin. (06)

A

Q-5 Explain the biochemistry of citric acid over production. (06)

B

OR

List and describe the raw materials used in brewing. (06)

Q-6 Explain the biochemistry of single cell oil production. (06)

A

Q-6 Discuss the critical factors affecting fermentation of L glutamic acid. (06)

B

OR

Explain the deregulation in L lysine overproducing mutants. (06)

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