

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2012

(CCSS)

Microbiology – Core Course

MB 6B 17 – INDUSTRIAL MICROBIOLOGY

Time : Three Hours

Maximum : 30 Weightage

Section A*Answer all twelve questions.*

1. The best medium for the industrial production of Penicillin is :
(a) Nutrient agar. (b) Corn steep liquor.
(c) Sulfite waste liquor. (d) Whey.
2. Vinegar fermentation involves :
(a) Yeasts only.
(b) Yeasts with lactic bacteria.
(c) Yeasts with acetic acid bacteria.
(d) Yeasts with butyric acid bacteria.
3. _____ is a downstream process.
(a) Media sterilization. (b) Production of seed.
(c) Cell immobilization. (d) Cell disruption.
4. *Aspergillus niger* is used generally for the production of :
(a) Ethanol. (b) Penicillin.
(c) Citric acid. (d) Lactic acid.
5. SCP from yeast is produced by :
(a) *Spirulina maxima*. (b) *Candida utilis*.
(c) *Saccharomyces cerevisiae*. (d) (b) and (c)
(e) All of them.
6. _____ is added as a precursor into the fermentation medium of Vitamin B₁₂.
(a) Magnesium chloride. (b) Magnesium sulphate.
(c) Cobalt sulphate. (d) Cobalt chloride.

Turn over

Fill in the blanks :

7. _____ is the starch hydrolyzing enzyme.
8. _____ is the most common methods of sterilization of air in aerobic fermentation process.
9. In lactic acid fermentation lactic acid downstream process starts with the addition of _____ which result in the production of salt lactate.
10. To prepare absolute alcohol from the 95% ethanol 5% water is removed by forming an _____ mixture of benzene, water an ethanol which then is distilled with increasing temperature increments.
11. To avoid strain _____ industrial strains are usually preserved by deep freezing or lyophilization.
12. CSL is used as the best source of _____ in fermentation media.

(12 x $\frac{1}{4}$ = 3 weightage)

Section B

Answer all.

Comment on :

13. Heat shocking.
14. Sparger.
15. Stillage.
16. Microbial consortia.
17. Fed batch fermentor.
18. Azotobacter.
19. Fixed-dome plant with a hemisphere digester (Deenbandhu model).
20. Cry gene.
21. Acetater.

(9 x 1 = 9 weightage)

Section C

Answer any **five** out of seven.

22. Define screening of industrially important micro-organisms. Why is it important ?
23. What is meant by scaling up? Why is essential for industrial fermentation process ?
24. List the important methods used in stain improvement of industrial strains.
25. Outline the precautions taken in the inoculums production for Acetone-Butanol fermentation by *Clostridium acetobutylicum*.
26. Outline the development of Genetically Modified Organism for Rennin production.