Register Number .....

B.TECH. DEGREE EXAMINATIONS: NOVEMBER 2009

Third Semester

BIOTECHNOLOGY

U07BT304: Microbiology

Time: Three hours **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (10 x 1 = 10 Marks)

1. Antony van Leeuwenhoek's best lenses were capable of magnification up to _____.

a) 10 X b) 45 X c) 100 X d) 270 X

2. In Numerical Taxonomy the Similarity % (%S) is calculated as follows

a) %S= NS/ (NS+ND) b) %S= NS x (NS+ND)

c) %S= NS/ (NS-ND) d) %S= NS /(ND+NS)

3. The counter stain in Gram's staining technique is _____

a) Gram's iodine b) Absolute alcohol c) Saffranin d) Methylene blue

4. The capsule of Bacillus anthracis is composed entirely of a polymer of _____.

a) glycine b) heteropolysaccharides c) glucan d) glutamic acid

5. The generation time of E.coli

a) 30-40 mins b) 15-20 min c) 30 min d) 16- 18 hrs

6. *Lactobacillus plantaram* does not require the amino acid _____ for growth at 25°C,but require it at 37°C.

a) alanine b) proline c) histidine d) phenyl alanine

7. Flaming identified an antibiotic _____.

a) streptomycin b) tetracycline c) ampicillin d) penicillin

8. 1000 test tubes containing 10 ml each of a liquid medium can be sterilized in autoclave at___.

a) 15 lb/m^2 at 121°C for 10-15 min b) 12 lb/m^2 at 110°C for 20 min

c) 17 lb/m^2 at 140°C for 20 min d) 15.7 lb/m^2 at 115°C for 1hr.

9. _____ is a technique of seed-dressing with bacteria..

a) Sterilization b) Aseptic culturing c) Gene cloning d) Bacterization

10. The Bt toxins get dissolved in _____ of caterpiller's digestive cavity.

a) acidic juice b) neutral juice c) secretions d) alkaline juice

PART B (10 x 2=20 Marks)

11. What is pasteurization?

12. What is shadow casting?

13. What is endospore?

14. What are the two main types bacterial viruses?

15. Why is agar an ideal solidifying agent for microbiological use?

16. What is Petroff-Hausser counting chamber?

17. What is tyndallization ?

18. Define the mode of action of formaldehyde in sterilization process?

19. Write any 4 benefits of biogas plants.

20. What is microbial leaching?

PART C (5 x 14 = 70 Marks)

21 (a) Describe the general methods of classifying bacteria.

(OR)

(b) (i) Describe about the dark field microscopy in detail (6)

(ii) Note on the following staining techniques- Gram staining, Acid fast staining & flagella staining. (4+2+2)

22 (a) Discus in detail about the various stages in the replication of bacterial viruses.

(OR)

(b) Define actinomycetes? Describe the replication process in detail.

23 (a) Discus the different phases of bacterial growth through growth curve.

(OR)

(b) Explain in detail about the energy utilization for biosynthesis of amino acids by microorganisms.

24 (a) Describe various physical agents used in the control of microorganisms.

(OR)

(b) Describe in detail about anti-bacterial, anti-fungal, anti-viral agents.

25 (a) Illustrate the production process of penicilins.

(OR)

(b) Describe the production of *Rhizobium* biofertilizer and its applications.

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