

M. TECH. DEGREE EXAMINATIONS: DECEMBER 2008

First semester

BIOTECHNOLOGY

P07BTB21- Cell Biology and Microbial Techniques

Time: Three Hours**Maximum Marks: 100****Answer ALL Questions:-****PART A (20 × 1 = 20 Marks)**

1. The Stability of the cell is largely determined by its
 - a. Glycoprotein
 - b. Antigen
 - c. Polymers
 - d. Phospholipids
2. The largest membrane in the eukaryotic cell is
 - a. Vesicle
 - b. Nuclear membrane
 - c. Endoplasmic reticulum
 - d. Plasma membrane
3. The disintegration of nuclear membrane in the eukaryotic cell begins in the
 - a. Anaphase
 - b. Telophase
 - c. Prophase
 - d. Metaphase
4. The integration of viral DNA occurs with the host DNA during the
 - a. Lytic cycle
 - b. Lysogenic cycle
 - c. Bacteriophage
 - d. Plant viruses
5. This discovery which led to the establishment of the pathogenicity of disease causing organism
 - a. Koch postulates
 - b. Microscope
 - c. Vaccination
 - d. Pure culture
6. The maximum resolution of electron microscope
 - a. 0.005 nm
 - b. 0.0005 nm
 - c. 0.05 nm
 - d. 0.5 nm
7. The stain used in the flagella stain is
 - a. Ziehl's carbol fuchsin
 - b. Nigrosin
 - c. Malachite green
 - d. Methylene blue
8. The complete medium with known chemical composition is
 - a. Synthetic medium
 - b. Non synthetic medium
 - c. Selective medium
 - d. Mixed medium
9. The growth in which all the bacterial cells are dividing at the same time is called as
 - a. Continuous culture
 - b. Synchronous growth
 - c. Mixed growth
 - d. Fast growth
10. Anaerobic mechanisms of energy production which do not involve respiratory chain or cytochromes are called as
 - a. Sulphate reduction
 - b. Glycolysis
 - c. Fermentation
 - d. Nitrate respiration

11. The polymeric structure which gives the rigidity of the bacterial cell wall is known as
 - a. Peptidoglycon
 - b. Chitin
 - c. Glucose
 - d. Protein
12. The primary mode of action of UV rays in controlling microorganisms is
 - a. Break down of nucleic acids
 - b. Protein break down
 - c. Lipid breakdown
 - d. Fatty acid synthesis
13. The temperature of pasteurization is
 - a. 62.8°C for 30 min
 - b. 76.2°C for 20 min
 - c. 77.4°C for 30 min
 - d. 78.6°C for 15 min
14. An example for broad spectrum antibiotic active against gram +ve and gram -ve bacteria is
 - a. Chloramphenicol
 - b. Tyrothricin
 - b. Nystatin
 - d. Fumagillin
15. The popular assay technique used to determine the potency of antibiotics is
 - a. Paper disc method
 - b. Tube-dilution method
 - c. Sensitivity test
 - d. Plant count method
16. Antibiotics are sterilized by
 - a. Filters
 - b. Hot air oven
 - c. Autoclave
 - d. Chemicals
17. The membrane that regulates the the movement of molecules in and out of the cell is
 - a. Plasma membrane
 - b. Cell membrane
 - c. Nuclear membrane
 - d. Lysosomes
18. Phagocytosis of the lower organisms takes place in the
 - a. Lysosomes
 - b. Chloroplasts
 - c. Ribosomes
 - d. Nucleus
19. The ability of change in the path of light for viewing microscopic specimens are used in
 - a. Light microscope
 - b. Phase contrast microscope
 - c. UV microscope
 - d. Dark field microscope
20. Group of phylogenetically related prokaryotic microorganisms which are primitive and differ with bacteria are called as
 - a. Archaea
 - b. Fungi
 - c. Viruses
 - d. protozoa

PART B (5x 16= 80 Marks)

- 21.(a)(i) Give an account of cytoskeletal elements of eukaryotic cell.
- (ii) How bacterial multiplication takes place?

(OR)

(b)(i) Explain the process of mitosis in the eukaryotic cell.

(ii) Give an account of classification of viruses.

22. (a)(i) Explain the process of disproving the spontaneous generation theory.

(ii) Give an account of electron microscopy with its merits and demerits

(OR)

(b)(i) Describe the different types of light microscopy.

(ii) Give an account of differential staining techniques.

23.(a) (i) Draw and explain the bacterial growth curve.

(ii) Explain the composition of bacteriological media and give examples.

(OR)

(b) (i) Explain the methods used for quantification of the microbial growth.

(ii) Give an account of biosynthesis of proteins.

24.(a).(i).Explain the beneficial and harmful host –microbe interactions. (10)

(ii).Explain the mode of action of antibiotics. (6)

(OR)

(b)(i) Explain the physical and chemical methods of control of microorganisms. (10)

(ii) Give an account of antibacterial agents. (6)

25.(a) (i) Explain the techniques of propagation of eukaryotic cells. (10)

(ii) Give an account of ATPase pumps (6)

(OR)

(b)(i) Explain the process of organ explant culture.

(ii) Differentiate the active and passive transport in the cell.
