



B.TECH DEGREE EXAMINATIONS: JUNE 2015

(Regulation 2009)

Fifth Semester

BIOTECHNOLOGY

BTY202: Molecular And Microbial Pathogenesis

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

- 1 Antibiotic that is active against Gram positive and negative bacteria
 - a. penicillin-G
 - b. penicillin-V
 - c. ampicillin
 - d. carbenicillin
2. Which of the following is sterilized by filtration
 - a. phenol
 - b. ethanol
 - c. citric acid
 - d. amino acids
3. Preferred portal of entry for *Streptococci* is
 - a. skin
 - b. genitourinal
 - c. gastrointestinal
 - d. respiratory
4. Blood poisoning associated with persistence of pathogens or toxins in blood is
 - a. toxemia
 - b. septicemia
 - c. pyrogenic
 - d. sporadic
5. Shiga toxins acts by
 - a. inhibition of protein synthesis
 - b. inhibition of DNA synthesis
 - c. decrease in neurotransmitter release
 - d. inhibition of synthesis of essential metabolites
6. Which of the following do not produce hemolysins
 - a. *Streptococci*
 - b. *Staphylococci*
 - c. *E.coli*
 - d. *Pseudomonas*
7. Which of the following produces cytotoxin
 - a. Tetanus
 - b. Vibrio
 - c. Diphtheria
 - d. Salmonella
8. Lipoteichoic acids bind non-specifically to host cells through
 - a. phospholipids
 - b. lipoprotein
 - c. glycocalyx
 - d. fimbriae

9. Which of the following is a second generation vaccine
- a. DNA vaccine b. sub unit vaccine c. attenuated cells d. dead microbial cells
10. The disadvantage of liposome mediated DNA vaccine delivery is
- a. toxicity b. High levels of immune response
c. Can increase transfection of intravenously delivered pDNA d. allergic

PART B (10 x 2 = 20 Marks)

11. Define resolving power and refractive index of a light microscope.
12. What is the role of cro gene in a bacteriophage?
13. State the role of attenuated viruses in pharamaceutics.
14. Mention the source and mode of action of leukocidins.
15. What are macrophage apoptosis? Give an example.
16. Why vaccination is not preferred for secondary infection of Influenza?
17. Cite the role of S-layer in bacterial adhesion.
18. Name two virulence factors that cause pathogenicity.
19. Distinguish DNA vaccination from attenuated vaccines.
20. Define therapeutic proteins with an example.

PART C (5 x 14 = 70 Marks)

21. a) Write an essay on different types of microscopy. Comment on the advancement in the field of microscopy.

(OR)

- b) What are toxins? Mention a detail account of DTP vaccine production and its applications.

22. a) Write the principle, procedure and significance of dilution susceptibility and disk diffusion tests.

(OR)

- b) How microbes tackle the host defenses through direct and indirect damages?

23. a) What are enterotoxigenic *E.coli*? State the pathogenic response and suggest treatment modalities.

(OR)

b) What is malaria? Highlight the causative organism, pathogenicity and remedial action for malaria.

24. a) Delineate the molecular characterization of virulence factors in detail.

(OR)

b) What are attenuated mutants? Depict the generation and characterization for cytotoxic effects.

25. a) Draft a protocol for identification of a pathogen through highly conserved virulence factors.

(OR)

b) How will you diagnose an unknown pathogen by PCR technique? Suggest possible strategies using molecular techniques.
