B.TECH DEGREE EXAMINATIONS: NOV/DEC 2010

Seventh Semester

BIOTECHNOLOGY

U07BTE08: Molecular & Microbial Pathogenesis

Time: **Three Hours** **Maximum Marks**: **100**

Answer ALL Questions

PART A (10 x 1 = 10 Marks)

1. The father of germ theory and bacteriology is ----------

   A. Robert Koch B. Louis Pasteur

   C. Robert Koch & Louis Pasteur D. Antony van Leeuwenhoek

2. New methods for grinding and polishing tiny lenses of great curvature which gave magnifications up to 270 diameters was drafted by ---------

   A. Robert Hooke B. Antony van Leeuwenhoek

   C. Charles A. Spencer D. Galileo

3. One of the following two terms is encountered in microbial pathogenicity

   A. Infection & Disease B. Infection & pathogen

   C. Disease & pathogen D. Viulence & pathogen

4. Humoral immunity is a type of immunity which is conferred through the release of

   A. antibodies B. WBCs C. enzymes D. toxins

5. The cholera toxin is an oligomeric complex made up of ------- protein subunits

   A. five B. six C. seven D. eight

6. Among several species of *Plasmodium* ------ is reported to cause maximum health complications and mortality in humans.

   A. Plasmodium ovale B. Plasmodium vivax

   C. Plasmodium malariae D. Plasmodium falciparum

7. ---------- starts with a signal to a receptor, and ends with a change in cell function

   A. Signal transcription B. Signal translation

   C. Signal transduction D. Transduction

8. Antibody-dependent cell-mediated cytotoxicity (ADCC) describes the cell killing ability of certain ----------

   A. somatic cells B. RBC C. lymphocytes D. complements

9. Vaccines can be

A. prophylactic only B. therapeutic only

C. prophylactic or therapeutic D. neither prophylactic nor therapeutic

10. The term *diagnostic criteria* designate the combination of signs, symptoms, and test results that the clinician uses to attempt as to determine the correct ------

A. diagnosis B. prognosis C. either diagnosis or prognosis D. investigation

PART B (10 x 2 = 20 Marks)

11. Write the Koch's postulates.
12. Define a vaccine. Distinguish between live and killed vaccines.
13. Write a brief note on first line defenses.
14. What is known as inflammation?
15. What is ETEC? Give a brief account on the importance of ETEC.
16. State the role of neuraminidase and haemagglutinin in the infection by influenza virus.
17. Define virulence. Give some of the virulence factors commonly developed by bacterial pathogens.
18. List out few criteria for identifying virulence factors among pathogens.
19. What are cocktail vaccines?
20 Give a short note on signal transduction.

PART C (5 x 14 = 70 Marks)

21. a) Elaborate the modes of viral entry inside a cell.

(OR)

b) Give a detailed account on the contributions of Louis Pasteur.

22. a) Explain the mechanism of killing pathogens by humoral and cellular mediated defense mechanisms.

(OR)

b) Describe about complement system.

23. a) Give a summary on the molecular mechanism of virulence in *Vibrio cholerae*..

(OR)

b) Discuss in detail the pathogenesis of *Plasmodium* species.

24. a) Write an account on the molecular characterization of virulence factors.

(OR)

b) Explain the following: i) Adherence ii) Invasion iii) Cytotoxic effects.

25. a) Elaborate the novel therapeutic strategies developed based on the molecular pathogenesis of pathogens.

(OR)

b) Describe about DNA and subunit vaccines.

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