Dr. Rahul

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -3 EXAMINATION- MAY 2019
B.Tech VI Semester

COURSE CODE: 10B11BT615 MAX. MARKS: 35
COURSE NAME: Diagnostics and Vaccine Manufacture Technologies
COURSE CREDITS: 4 MAX. TIME: 2 HR

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1. With respect to Kirby-Bauer Test give reasons for the following: (CO-5) **[1.5 X 4 = 6]**

i. Only log phase cultures should be used for testing

ii. KB test cannot be used for fastidious organism

iii. Increase or decrease in incubation temperature may lead to false positive AST results

iv. Increase in initial inoculums density may lead to false negative AST results

Q2. Write Short Notes on the following Vaccines: (CO-3) **[2 X 7 = 14]**

a. RTSS b. Afluria c. Fluarix d. dTaP

e. Recombivax HB f. DTaP g. Horse Polyvalent Antivenom

Q3. In an experiment to determine antimicrobial susceptibility of *Salmonella typhimurium* to Drug 'X'. The initial concentration of drug in column 1 was 1000µg/ml of the culture, and the drug was diluted 2-fold from column 1 to column 11. No drug was added to column 12. The plate was observed after 16 hours for visible growth, and CFU count was done using 100µL of samples from wells showing no visible growth. Following data was obtained:

	1	2	3	4	5	6	7	8	9	10	11	12
Visible Growth	-	-	-	-	-	+	+	+	+	+	+	+
Dilution	**-2**	**-3**	**-5**	**-7**	**-9**	NA	NA	NA	NA	NA	NA	**-9**
No. of Colonies	**36**	**42**	**42**	**42**	**30**	NA	NA	NA	NA	NA	NA	**64**

Determine the MIC and MBC of the drug, and indicate whether it is bactericidal or bacteriostatic in action with reason. Draw a graph showing growth curves of the bacteria after addition of drug. All calculations should be done in fair copy only. (CO-5) **[1+2+1.5+1.5=6]**

Q4. Draw a diagram showing laboratory set-up for a PCR-based diagnosis laboratory. Discuss the function of each segment involved. (CO-4) **[4.5]**

Q5. Write Short Notes on the following: (CO-2) **[4.5]**

A. Checkerboard titration method for design of an ELISA experiment **[2.5]**
B. Prozone Phenomenon **[1]**
C. Zeta Potential **[1]**