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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-2 EXAMINATION- APRIL -2019
B.Tech VI Semester

COURSE CODE: 10B11BT615 MAX. MARKS: 25
COURSE NAME: DIAGNOSTICS & VACCINE MANUFACTURE TECHNOLOGIES
COURSE CREDITS: 04 MAX. TIME: 1 HR 30Mins

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Answer all subparts of a question at one place.

Q1. Describe Direct and Indirect Immunofluorescence, along with their important applications. **[4] (CO-II)**

Q2. Write Short Notes on: **[2 X 4 = 8] (CO -III)**

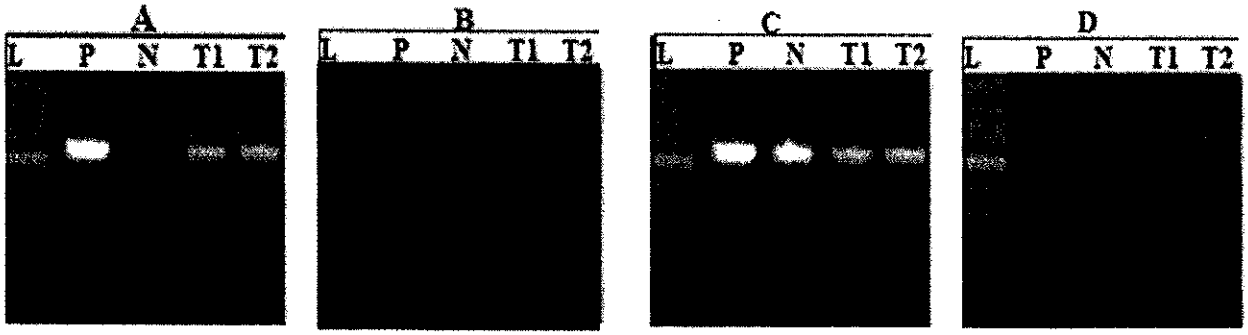
A. Labeling of DNA probes
B. Latest vaccines developed for Alzheimer's disease
C. Multivalent and Conjugated vaccines
D. Japanese encephalitis vaccines

Q3. Explain the following statements related to Sandwich ELISA with reasons: **[1.5 X 2 =3] (CO -II)**

i. Use of capture antibody in Sandwich ELISA increases detection sensitivity of the antigen.
ii. Washing steps are essential for proper results to obtain.

Q4. Forward and reverse primers designed for amplification of a 'LipU' gene of *Mycobacterium tuberculosis* show non-specific amplifications, with the forward and reverse primers binding at multiple locations in the genome. Describe a strategy for specific amplification of the gene. **[4] (CO -I)**

Q5. A set of PCR reactions were performed for diagnosis of viral infection; using human blood samples. Genomic DNA of the virus was isolated and used to amplify presence of a unique sequence, for confirming the presence of virus. PCR reactions were performed FOUR TIMES (A, B, C and D); with Proper positive (P) and negative (N) controls along with test samples (T1 & T2). The PCR products thus obtained were run on agarose gel, with DNA ladder. Provide suitable explanation for the following results obtained. In each case point out if the test would be valid or not? **[4 X 1.5 = 6](CO-IV)**



L = 100bp DNA Ladder; P = Positive Control; N = Negative Control; T1 & T2 – Patient Test Samples