JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B.Tech-VII Semester (CSE/IT/ECE/CE)

COURSE CODE (CREDITS): 21B1WBT731 (3-0-0) MAX. MARKS: 15

COURSE NAME: HUMAN DISEASE AND DIAGNOSTICS

COURSE INSTRUCTOR: Dr. Tyson MAX. TIME: 1 Hour

Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculator is not allowed

Q.No	Question	CO	Marks
Q1	Describe the procedure for blood sample collection and explain the different methods of blood preservation. Discuss the various preservatives/anticoagulants used for blood samples.	I	4
Q2	A rapid lateral flow immunoassay is used for early detection of pregnancy. a) Discuss the principle of the lateral flow immunoassay, including the role of hCG, labelled antibodies, and the test and control lines in pregnancy detection. b) Discuss the procedure and interpretation of different result patterns obtained in a rapid pregnancy test, including the significance of an invalid result.	III	2+2
Q3	A serum sample is suspected to contain antibodies against a specific pathogen. An enzyme-linked immunoassay is used to confirm their presence. a) Which type of ELISA would be most appropriate in this situation? Justify your choice based on its principle and antibody–antigen interaction. b) Discuss the sequence of major steps involved in the selected ELISA and how the enzyme–substrate reaction helps in detecting the antibodies.	IV	2+2
Q4	How can a specific DNA sequence be selectively amplified from a biological sample using PCR? Describe the principle and major steps involved in the process.	II	3