

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B.Tech-V Semester (CSE/IT)

COURSE CODE (CREDITS): 25B1WCI739 (2)

MAX. MARKS: 15

COURSE NAME: BLOCKCHAIN & CRYPTO-CURRENCIES

COURSE INSTRUCTOR: Dr. Rakesh Kanji

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	(i) Analyze the procedure that Peer-to-Peer (P2P) network use to enable decentralization in blockchain. (ii) Using a suitable diagram, compare the communication and control mechanisms of a centralized network with those of a decentralized blockchain network	1	2+2
Q2	(i) Outline the key properties of blockchain technology. (ii) Explain how they contribute to security, trust, and reliability in a distributed environment.	1	1.5+1.5
Q3	(i) Describe the initial 512 bits preparation phase by SHA-256. (ii) Write the formula with defining all parameters used by SHA-256 function to produce 64 round information. (iii) Apply SHA-256 as notation (h_i) for file i to compute Markel root of any 3 level binary tree.	2	1+2+1
Q4	(i) E: $y^2 \equiv x^3 + 2x + 2 \pmod{17}$ take basic point $G=(5,1)$ produce $5G$. E is elliptic curve. (ii) Show Elliptic Curve Digital Signature Algorithm with the diagram only.	2	2+2