

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

B.Tech-7th Semester (CSE/IT)

COURSE CODE (CREDITS): 18B1WCI736

MAX. MARKS: 25

COURSE NAME: STORAGE NETWORKS

MAX. TIME: 1 Hour 30 Min

COURSE INSTRUCTORS: Dr Pankaj Dhiman, Mr. Akshay Kumar

Note: (a) All questions are compulsory.

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

Q.No	Question	CO	Marks
Q1	Given a RAID 6 array with 10 disks, each of 8 TB, calculate the usable storage and explain how the parity is distributed.	1	5
Q2	In an intelligent disk subsystem, how do caching algorithms, command queuing, and workload prediction interact? Illustrate with a scenario involving mixed random and sequential workloads.	2	5
Q3	How does DAS provide block-level access compared to NAS's file-level access? Discuss with examples how applications like databases vs. shared file servers perform differently under each.	3	5
Q4	Why Fibre Channel is still preferred in mission-critical systems despite IP SANs being cheaper? Discuss latency determinism, lossless transport, and fabric services as deciding factors.	3	5
Q5	Explain the hardware architecture of a Network Attached Storage (NAS) system. Discuss the function of each major hardware component CPU, memory, bus architecture, storage controllers, and network interfaces in enabling efficient file-based data access.	3	5