JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Make-up Examination-Nov-2025

COURSE CODE (CREDITS): 25B11CI513 (3)

MAX. MARKS: 25

COURSE NAME: Cloud Computing and Security

COURSE INSTRUCTORS: ARV

MAX. TIME: 1 Hour 30 Minutes

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	(a) Explain the various key pillars of data protection in the cloud? (b) Identify and describe different types of cloud security risks that organizations face while adopting cloud computing.		5
Q2	(a) Explain how encryption helps in protecting cloud data. (b) What is the difference between data protection at rest, in transit, and in use?		5
Q3	(a) How can data integrity be maintained in cloud computing? (b) How does identity and access management (IAM) contribute to data protection?		5
Q4	(a) A company wants to transfer 200 GB of encrypted backup data over a 100 Mbps secure VPN. Calculate how long the transfer will take (in hours). (b) A file of 40 GB is first compressed by 25% and then encrypted with a 5% overhead. Find the final size of the file. (c) A system uses 256-bit encryption keys. If key rotation happens every 90 days for 2000 users, how many encryption keys will be generated in 1 year? (d) A company keeps 4 independent copies of critical data. Probability of loss of one copy in a year is 0.001 (1%). What is the probability of losing all four copies? (e) A secure deletion routine deletes blocks independently. Probability a single block fails secure wipe = 0.0005. A file has 4,000 blocks. What is the probability at least one block remains (i.e., deletion failure for the file)?		10