JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B.C.A.-III Semester (AIDS/AIML)

COURSE CODE (CREDITS): 25B11MA315 (3) MAX. MARKS: 15

COURSE NAME: APPLIED PROBABILITY AND STATISTICS

COURSE INSTRUCTOR: SST 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 a scientific calculator is allowed.

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Q. No.	Question	CO	Marks
Q1	The response times (in milliseconds) of a web server for 10 requests are: 120, 150, 135, 160, 145, 150, 180, 140, 150, 170. **a)** Construct a frequency distribution. **b)** Calculate the mean response time. **c)** Calculate mode.	1	3
Q2	The CPU utilization percentages recorded by a computer system at five different times are: 20, 30, 40, 50, 60 Calculate: **a)** Variance **b)** Standard deviation. **c)** Comment on the variability of CPU utilization.	1	3
Q3	The daily number of failed logins attempts on a server is: 2, 3,3, 4, 5, 6, 8, 12, 15, 22 Calculate Pearson's coefficient of skewness. Interpret the nature of the distribution and explain what the skewness indicates about the server's login-failure data.	1	3
Q4	In a computer network, a packet is routed through either Server A or Server B. The probability that a packet is sent through Server A is 0.6, while through Server B it is 0.4. The probabilities of packet loss are 0.02 for Server A and 0.05 for Server B. Find: **a)** The probability that a randomly selected packet is lost, and **b)** The probability that a packet was routed through Server B given that it was lost.	2	3

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Q5	A company's cybersecurity system uses three intrusion-detection algorithms A1, A2, A3. They detect 50%, 30%, and 20% of the network traffic, respectively. Their probabilities of correctly identifying a cyberattack are 0.90, 0.80, and 0.70, respectively. If a randomly selected network event is correctly identified as a cyberattack, find the probability that it was detected by: **a)** A1, **b)** A2, and **c)** A3	**2**	**3**

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