JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B.Tech-VI Semester (IT)

COURSE CODE (CREDITS): 18B11CI613 (3) MAX. MARKS: 15

COURSE NAME: Data Mining

COURSE INSTRUCTORS: Ekta Gandotra 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) Calculator is allowed.

Q. No.	Question	CO	Marks
Q1.	The following data represent the number of hours studied by 12 students: 10, 12, 14, 4, 6, 8, 16, 18, 24, 30, 20, 22.	3	
	a. Calculate the Q1, Q2 and Q3 using the interpolation method.		[2]
	b. Construct a properly labelled box plot, using an appropriate scale.		[1]
	c. Interpret the box plot with respect to the spread and skewness of the data.		[1]
Q2.	Objects A and B are described using the following asymmetric binary attributes, where 1 indicates the presence of the attribute and 0 indicates its absence.	3	

	F1	F2	F3	F4	F5	F6
A	1	1	0	1	0	1
B	1	0	1	1	0	0

Q. No.	Question	CO	Marks
	a. Compute the similarity index between objects A and B using an appropriate similarity measure for asymmetric binary attributes.		[2]
	b. Interpret the obtained similarity value.		[1]
Q3.	A multinational retail company collects sales, inventory, and customer data from multiple regions. Briefly explain how a data warehouse supports strategic decision-making with respect to:	1	
	a. Transformation of data from OLTP systems into the data warehouse.		[1]
	b. Role of OLAP in analyzing historical and aggregated data.		[1]
	c. Limitations of using only OLTP systems for business intelligence.		[1]
Q4.	Consider the following dataset consisting of five data objects described by two numerical attributes F1 and F2.	1	

	A	B	C	D	E
F1	1	2	3	4	5
F2	300	400	500	600	700

Q. No.	Question	CO	Marks
	a. Normalize attribute F2 using the Min-Max normalization technique so that its values lie in the same range as attribute F1.		[2]
	b. For the normalized dataset, compute the distance matrix between all pairs of objects using: i. L_2 norm ii. L_∞ norm		[3]