JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Supplementary Examination- 2026

B.Tech-III Semester (CE)

COURSE CODE(CREDITS): 25B11CE312 (3) MAX. MARKS: 75

COURSE NAME: Surveying

COURSE INSTRUCTORS: Ashish Kumar MAX. TIME: 2 Hours

Note: (a) All questions are compulsory.

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

(c) Notation has its usual meaning.

(d) Use of scientific calculator is allowed.

Q.No	Question	CO	Marks
Q1(a)	Differentiate between forward bearing and backward bearing with suitable example.	1	3
Q1(b)	A chain line ABC crosses a river, B and C being on the near and distant respectively. A perpendicular BE, 50 m long is set out at B on the left of the chain line. AB is 25 m long. The bearings of C and A taken from E are 67° 30′ and 157° 30′ respectively. Find the chainage of C, if the chainage of B is 275.5 m.	1	7
Q2	A steel tape 30 m long is standardized at 60°F with a pull of 25Kg and used for measuring a base line. Find the correction per tape length, if the temperature at the time of measurement was 80°F and the pull executed was 38Kg. Unit weight of steel is 7.86 g/cc, weight of tape is 0.8Kg and E= 2.11 X 10^6 Kg/cm^2. Coefficient of thermal expansion is 6 X 10^{-6} per °F.	2	8
Q 3(a)	During the levelling operation a river obstructed the levelling operation. Which method will you prefer to do levelling operation and why? Explain the procedure with diagram.	3	6
Q3(b)	The following readings were taken with a level and 4 m staff. Draw up a level book page and find out the RL of each point. The Rl of first point is 100 m. The level was shifted after 3rd and 7th reading. 0.570, 0.930, 1.760, 2.450, 2.005, 0.567, 1.885, 1.185, 3.670, and 0.612.	3	10
Q4	Define the term contour line and contour interval. Show with neat sketches the characteristics features of the contour lines of the (i) a pond (ii) a hill (iii) vertical cliff.	2	6
Q5(a)	Differentiate between fixed hair method and movable hair method of tacheometry. Which method will you prefer?	4	5
Q5(b)	A tacheometer was set up at a station O and staff reading was taken at point A. Following readings were obtained:	4	10

	Staff Station	Vertical angle	Staff readings				
	A	6° 20'	0.445	1.675	2.905		
	The instrument was fitted with an anallatic lens and the constant was 100. Find the horizontal distance between staff and instrument station (OA) and RL of point A if RL of instrument axis is 100m .						
Q6	The chainage of the intersection of two straights having angle of deflection of 60° is 1680.5 m. If radius of curve is 500 m, calculate the tangent distance, length of curve, chainage of point of curve and point of Tangency, length of the long chord, degree of curve.					5	12
Q7	Explain the architecture of a GIS. How data in GIS is represented?					6	8