JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2025

BTech-III Semester (CSE/IT/ECE/CE/BT/BI)

COURSE CODE (CREDITS): 25B11CE312 (3)

COURSE NAME: Surveying

MAX. MARKS: 35

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) Use of scientific calculator is allowed.

Q.No	Question	CO	Marks
Q1 (a)	Define the term Magnetic Declination.	2	1
Q1 (b)	The length of a line measured with a chain of 50 m was found to be 1000 m. If the chain is 25 cm too short, find the true length of the line ?	2	2
Q2	A BM has to be established at a new construction site. Which type of leveling operation you would prefer? Explain the procedure briefly.	3	2
Q3 (a)	Explain the principle of tacheometry.	3	2
Q3 (b)	The following observation was taken with a transit Theodolite. <table><tr><td>Inst Station</td><td>Target</td><td>Staff station</td><td>Vertical angle</td><td>Staff readings</td><td>remarks</td></tr><tr><td>O</td><td>Lower</td><td>A</td><td>5 °</td><td>0.950</td><td rowspan="2">RL of instrument axis 250 m</td></tr><tr><td></td><td>Upper</td><td></td><td>7° 30'</td><td>3.250</td></tr></table> Calculate the horizontal distance between the instrument station and staff, as also RL of staff station A.	3	5
Q4	The following readings refer to the reciprocal observations from two points on either side of river. Determine the true difference of elevation and the combined error due to curvature and refraction. The distance between the stations = 1200 m. If RL of the station A is 150 m find out the Rl of Station B. <table><tr><td>Level at</td><td colspan="2">Reading on</td></tr><tr><td></td><td>A</td><td>B</td></tr><tr><td>A</td><td>1.115</td><td>1.765</td></tr><tr><td>B</td><td>1.750</td><td>2.315</td></tr></table>	3	5
Q5 (a)	Define the term degree of curve.	5	2

Q5 (b)	Calculate the necessary data for setting out a circular curve of 400 m radius to connect the straights by the method "offsets from the long chord". The deflection angle between two straights is 60°. Also draw the rough sketch of the curve layout.	5	5
Q6	A new station has to be established with three already known points on the survey field and their locations are already known on plane table. Which method you will prefer? Explain the method with neat sketch.	4	5
Q7	A city planning department wants to modernize its map-based decision-making process. (a) As their technical consultant, explain what a Geographical Information System (GIS) is. (b) Justify why adopting GIS would be more beneficial than relying on traditional hard-copy maps. (c) The department has datasets describing road locations, land values, population figures, and flood-prone zones. Classify these as spatial data or attribute data with reasons.	6	6