JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION-2022

B.Tech-III Semester (CS/IT/ECE/Civil/BT)

COURSE CODE (CREDITS): 18B11CE312(3) MAX. MARKS: 35

COURSE NAME: SURVEYING

COURSE INSTRUCTORS: DR. Ashish Kumar MAX. TIME: 2 Hours

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Assume suitable data if required. Notation has its usual meaning.

Q1. Explain the following briefly. [CO2] **[5]**

a. What is collimation error? To check the collimation error in a levelling instrument what would you do?
b. Define the term Bench Mark. Name different types of Bench Mark.
c. Define the term Magnetic Declination.
d. What is curvature error in leveling? How it is corrected?
e. Contour lines are always parallel – comment on this line.

Q2. (a) Define the terms Back sight, Intermediate sight, and foresight in levelling operation. [CO4] **[1]**

(b) In leveling between two points *A* and *B* on opposite banks of a river, the level was set up near *A* and staff readings on *A* and *B* were 1.285 m and 2.86 m respectively. The level was then moved and set up near *B* and readings was 0.860 m and 2.220 m and A and B. Find the true difference of level between *A* and *B*. [CO4] **[2]**

Q3. (a) Define the meridian distance of a point and the meridian distance of a line with a diagram. [CO3] **[2]**

(b) The following table gives the corrected latitudes and departures (in m) of the sides of a closed traverse ABCD. Compute the area by M.D. method. [CO3] **[3]**

Side	Latitude		Departure	
	N	S	E	W
AB	128		9	
BC	15		258	
CD		143	9	
DA	0			276

Q4. What is the principle of plane tabling? Suppose you want to establish a new station in the field with the help of already established three stations and their position in the Plane table. Which method will you prefer? Explain the method with a neat sketch? [CO1] **[1+4]**

Q5. (a) What is the Principle of Tacheometry? [CO2] [1]

(b) A tacheometer was set up at an intermediate station C of the line AB and following readings were obtained:

Staff Station	Vertical angle	Staff readings		
A	-6° 20'	0.445	1.675	2.905
B	4° 20'	0.950	1.880	2.810

The instrument was fitted with an anallatic lens and the constant was 100. Find the gradient on the line joining station A and station B. [CO4] [5]

Q6. The chainage of the intersection point of two straights is 1060 m and the angle of intersection is 120°. If the radius of a circular curve is 570 m and the peg interval is 30 determine the following components of the curve: tangent length, chainage at the beginning and end of the curve, length of the long chord, length of the sub-chords and chords, the total number of normal chords. [CO2] [6]

Q7. It is understood that atmospheric scattering & absorption is not constant across the electromagnetic spectrum. In some regions of the spectrum, EMR (electromagnetic radiation) passing through the atmosphere is less affected. Keeping in mind, explain the phenomenon of scattering & absorption and atmospheric window in remote sensing. [CO5] [5]