Student Exam No:

GANPAT UNIVERSITY

B.TECH SEM IV CIVIL ENGINEERING

REGULAR EXAMINATION MAY-JUNE 2013

SUBJECT: 2CI402 SURVEYING

Time: 3 Hours **Max Marks: 70**

Instructions: - (1) Answer to the two sections must be written in separate answer books.
(2) Figures to the right indicate full marks.
(3) Assume suitable data if required.

SECTION - I

Q1 (A) Describe the procedure of plane table in detail. (4)

(B) Explain the Rise fall and Height of instrument method in detail. (4)

(C) The following perpendicular offsets were taken from a chain line to a hedge: (4)

Distance(m)	0	20	40	60	80	100	120
Offset(m)	1.5	2.5	3.5	3.0	2.8	2.2	1.4

Calculate the area by Simpson's rule and trapezoidal rule.

OR

Q1 (A) Explain the resection method with the help of two point problems. (4)

(B) What is permanent adjustment? Describe the two-peg method of adjustment along with neat sketch. (4)

(C) The following perpendicular offsets were taken at 20 m intervals from a survey line to an irregular boundary line: 1.2, 6.3, 4.2, 4.3, 7.2, 7.5, 9.2, 0.3 meters. Calculate the area enclosed between the survey line, The irregular boundary and the first and the last offsets, using Simpson's rule. (4)

Q2 (A) Discuss any one methods of traversing by theodolite. (4)

(B) Write advantages and disadvantages of plane table in detail. (4)

(C) Find the height of a Tee – beam above the floor level. The R.L of the floor is 100.880 m. and the staff reading on the floor is 2.155 m. The reading on a staff held upside down against the underside of the beam is 3.665 m. (3)

OR

Q2 (A) Draw Gale's traverse table and discuss steps for plotting by it. (6)

(B) An excavation is to be made for a reservoir 26 m ling and 15 m wide at the bottom, of side slope 2:1. Calculate the volume of excavation if the depth is 4 m. Assume that the ground surface is level before excavation. (5)

Q3 (A) Draw cross section of theodolite and function of each part. (6)

(B) The following observations were made for a closed traverse ABCDEA. (6)

Line	Length (m)	Included Angle	
AB	1512.1	∠EAB	=112°36'
BC	863.7	∠ABC	=131°42'
CD	?	∠BCD	=95°43'
DE	?	∠CDE	= ?
EA	793.7	∠DEA	=93°14'

It was not possible to occupy D, but it could be observed from C and D. Calculate the observation that could not be made taking DE as datum assuming all the observation to be correct.

SECTION - II

Q.4 (A) A Page of a level book is shown in the following. Fill the missing reading and calculate the RL of all points. Apply the usual checks. (6)

Point	*B.S.*	*I.S*	*F.S*	*Rise*	*Fall*	*R.L.*	*Remarks*
1	2.150					450.000	**B.M.- I**
2	1.645		X	0.500			
3		2.345			X		
4	X		1.965	X			
5	2.050		1.825		0.400		
6	X		X	X		451.500	**B.M.- II**
7	1.690		1.570	0.120			
8	2.865		2.100		X		
9			X	X		451.250	**B.M.- III**

(B) For a closed traverse ABCDE the length and bearings of the lines are given below. Prepare gales traverse table for the traverse, showing calculation for each. Also draw traverse by taking suitable scale. (6)

Line	Length (m)	Bearing
AB	362.55	N33°10'W
BC	218.00	N39°08'E
CD	163.22	S10°20'E
DE	195.95	S66°50'E
EA	278.53	S32°20'W

Q5 (A) List out the method of locating sounding. Explain any one. (4)
(B) Write the procedure for setting out of building. (4)
(C) What are Zero circles? (3)

OR

Q5 (A) Define: (a) reduced level (b) bench mark (c)back sight (6)
(B) The following offsets were taken from a chain line to a hedge at regular interval of 5.0 m (5)
Offsets (m): 2.72, 3.46, 5.23, 6.80, 4.86, 3.35, 3.00, 2.50, 1.60
Determine the included between the chain line and the hedge by (a) Mid-ordinate rule, (b) Average Ordinate rule.

Q6 (A) State the Simpson' rule. What are the considerations and limitation of this rule? (4)
(B) How do you determine the capacity of reservoirs? (4)
(C) What are the different corrections applied to leveling? (4)

OR

Q6 (A) Enlist methods of traversing. Describe tape and transit method. (6)
(B) Give difference between following.(i) Latitude and Departure (ii) Consecutive co-ordinates and Independent co-ordinates (6)

END OF PAPER