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B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2012

GEOINFORMATICS

Third Semester

GI 9201 SURVEYING - I

(Regulation 2008)

Time: 3 Hours

Answer ALL Questions

Max. Marks: 100

PART-A (10 x 2 = 20 Marks)

1. Define the terms: Precision and Accuracy.
2. State the basic principles of chain surveying.
3. Establish the relationship for computing the normal tension in chain surveying.
4. Bring out the temporary adjustment of a prismatic compass.
5. List the instrument and accessories used in plane table surveying and also mention its usage.
6. What are the advantages of plane table surveying over the other type of surveying?
7. Write about the GTS Bench mark.
8. An observer standing on the deck of ship just sees a light house. The top of the light house is 42m above the sea level and the height of the observer's eye is 6m above the sea level. Find the distance of the observer from the light house.
9. How will you interpolate the contours by knowing the Reduced Levels at grid corners?
10. What is Mass Haul diagram? Mention its uses also.

Part – B (5 x 16 = 80 marks)

11. (i) What is surveying? Mention its objectives. (4)
(ii) Classify surveying (4)
(iii) Bring out the basic principles of surveying. (8)
12. a) (i) Explain in detail, about reciprocal ranging. (6)
(ii) A distance was measured using a 30m steel tape in 4 sections: 30m, 30m, 30m and 26.455m, total 116.455m. The tape was supported at the two ends during the measurements. The field temperature was 30°C and a tension of 100 N was used. The tape was calibrated fully supported at temperature of 20°C using a tension of 75N and had a length of 30.01m compute the correct distance. Take the weight of the tape as 15N and cross sectional area as 0.02cm². Coefficient of expansion = $116 \times 10^{-5} / ^\circ\text{C}$, Youngs modulus = $2.06 \times 10^5 \text{ N/mm}^2$ (10)

OR

12. b) (i) How will you determine MSL distance from the observed distance corrected for all other errors? (6)

(ii) B and C are two points on the opposite banks of a river along a chain line ABC which crosses the river at right angles to the bank from a point P which is 45.72m from B along the bank, the bearing of A is $215^{\circ}30'$ and the bearing of C is $305^{\circ}30'$, If the length of AB is 60.96m, find the width of the river. (10)

13. a) (i) What is local attraction? How is it detected? (4)

(ii) Find the corrected bearing of the following traverse taken from the compass survey run in anticlockwise direction. (12)

Line	FB	BB
AB	$191^{\circ}30'$	$13^{\circ}00'$
BC	$69^{\circ}30'$	$246^{\circ}30'$
CD	$32^{\circ}30'$	$210^{\circ}30'$
DE	$262^{\circ}30'$	$80^{\circ}30'$
EA	$230^{\circ}00'$	$53^{\circ}00'$

OR

13. b) How will you prepare the plan of a building with the help of Plane Table and its accessories? (16)

14. a) Given below is a page of a level field book. Fill in the missing data and apply the usual checks. (16)

BS	IS	FS	RISE	FALL	RL(m)	Remarks
2.150					450.000	BM1
1.645		?	0.500			CP1
	2.345			?		BM2
?		1.965	?			CP2
2.050		1.825		0.400		CP3
	?		?		451.730	BM3
-1.690		-0.020	0.120			CP4
?		2.100		3.790		CP5
		1.825	?		449.100	RM4

OR

14. b) Explain in detail, about the check levelling and reciprocal levelling. (16)

15. a) Explain in detail, about the profile levelling. (16)

OR

15. b) In a proposed hydro-electric project, a storage reservoir was required to provide a storage of 4.5 million m^3 between the lowest draw down (LDD) and the top water level (TWL). The area contained within the stated contours and upstream face of the dam were as follows:

Contour	100	95	90	85	80	75	70	65
Area (Ha)	30	25	23	17	15	13	7	2

If LDD was to be 68m, calculate the TWL for

(a) Full storage capacity

(b) 50% full storage capacity (16)