Code No. 6014 / S

FACULTY OF ENGINEERING

B.E. 2/4 (Civil) I – Semester (Supplementary) Examination, July 2014

Subject : Surveying - I

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (2.5 x 10 = 25 Marks)

1 Write the salient features of Engineer's chain.
2 State tolerable limit of a chain when measured on a permanent test gauge.
3 Differentiate between magnetic declination and dip of magnetic needle.
4 The magnetic bearing of a line is $50^0 10'$. Calculate the true bearing, if the magnetic declinations is $1^0 55'$ west.
5 Define the terms. Isogonic lines and Agonic lines.
6 Define orientation of plane table.
7 Write the details of intersection method of plate table surveying.
8 Draw a typical sketch showing working principle of internal focusing telescope with its component parts labeled.
9 Write the procedure in brief on leveling of a dumpy level with four foot screws.
10 State any four characteristics of contour lines.

PART – B (50 Marks)

11 a) A base line was measured with a 30m long steel tape at 15^0C and with a pull of 100N (10kgf). What is the correction per tape length, if the temperature of the time of measurement was 22^0C and the pull exerted was 150N (15 kgf)? The weight of the steel is 0.768 N/cm^3, weight of the tape is 8N, modulus of elasticity of the tape materials is 2.1 x 10^7 N/cm^2 and its co-efficient of linear expression is 7.0 x $10^{-7}/^0$C. 6

b) Write the working principle of optical square. 4

12 Determine the corrected bearings based on the following given compass survey work. The declination observed there was $5^0\ 10'E$. What are the true bearings? 10

Line	FB	BB
AB	$75^0\ 5'$	$254^0\ 20'$
BC	$115^0\ 20'$	$296^0\ 35'$
CD	$165^0\ 35'$	$345^0\ 35'$
DE	$224^0\ 50'$	$44^0\ 5'$
EA	$304^0\ 50'$	$125^0\ 5'$

13 a) Write the Laymann's rules adopted for solving a three point problem. 5

b) Write the details of solving two point problem of plane table surveying. 5

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14 Fill the missing figures and complete the level book page apply usual arithmetic checks 10

Stn	BS	IS	FS	Rise	Fall	RL	Remark
1	2.285					232.460	BM_1
2	1.650		X	0.020			
3		2.105			X		
4	X		1.960	X			
5	2.050		1.925		0.300		
6		X		X		232.255	BM_2
7	1.690		X	0.340			
8	2.865		2.100		X		
9			X	X		233.425	BM_3

15 a) Write about different methods of interpolation of contours. 5

b) Write the working principle of tangent Clinometer used for drawing contour lines by Plane Table surveying. 5

16 a) Derive expressions for determination of volume by
i) Trapeziodal and
ii) Simpson's, rule 5

b) A road embankment 400m long is 15m wide at the formation levels has the side slope as 2 to 1. The ground levels at every 100m along the centre line are as follows : 5

Dist (m)	0	100	200	300	400
R.L.(m)	205.4	206.9	210.1	209.2	207.4

The formation level at the zero chainage is 206m and the embankment has a rising gradient of 1 in.100. The ground is level across the centre line. Calculate the volume of earth work.

17 Write short notes on the following : 2.5 x 4 = 10

a) Hypotenusal allowance
b) Tilting level
c) Errors in plane table survey
d) Limitations of Prismoidal formula

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