

THIRD SEMESTER B.ARCH. DEGREE EXAMINATION, MAY/JUNE 2005**SURVEYING AND LEVELING**

(2003 Scheme)

Time : Three Hours

Maximum : 100 Marks

*Answer all questions.
Missing data if any may be assumed.*

- I. (a) Distinguish between True and Magnetic meridian.
 (b) What is local attraction. How is it detected and eliminated.
 (c) Define contours and explain its characteristics.
 (d) Explain how closing error is adjusted in a closed traverse.
 (e) What is total station ? Explain.

(5 × 5 = 25 marks)

- II. (a) Explain steps involved in the fieldwork of chain survey. (7 marks)
 (b) In passing an obstacle in the form of a pond stations A and D on the main line were taken on the opposite side of the pond. On the left of AD a line AB 200 m long was laid down and a second line AC 250 m long was ranged on the right of AD. The points B and D and C being in the same straight line. BD and DC were found to be 125 m and 150 m respectively. Find length of AD.

(8 marks)

Or

- (a) Explain with neat diagrams the construction and working of the following. (a) optical square
 (b) Prism square (c) Cross staff.

(7 marks)

- (b) What are the conventional symbols used while plotting a survey map. Draw the following
 (i) Buildings (2) River, (3) Boundaries, (4) Bench mark.

(8 marks)

- III. (a) Sketch and describe prismatic compass. (7 marks)
 (b) Calculate the interior angle of a closed traverse ABCDE with the bearing of lines given below :

<i>Side</i>		<i>Fore</i>	<i>Bearing</i>
<i>AB</i>	...	118°	20'
<i>BC</i>	...	36°	0'
<i>CD</i>	...	262°	30'
<i>DE</i>	...	189°	15'
<i>EA</i>	...	124°	30'

(8 marks)

Or

- (a) Explain reduced bearing and whole circle bearing. (7 marks)
- (b) The following bearings are observed with a compass. At what station local attraction is occurred. Find the correct bearing :

Line	FB	BB
AB	64° 0'	244° 0'
BC	90° 30'	270° 30'
CD	166° 0'	343° 0'
DE	178° 0'	0° 0'
EA	198° 0'	18° 0'

(8 marks)

- IV. (a) Define three point problem. How it is solved by tracing paper method. (7 marks)
- (b) What are the temporary adjustment of a plane table. (8 marks)

Or

- (a) What are the instruments used in plane table survey. Explain each of them. (7 marks)
- (b) Explain how plane table is used for plotting a closed traverse. (8 marks)
- V. (a) Explain temporary and permanent adjustment of a levelling instrument. (7 marks)

- (b) The following consecutive readings were taken with a level and a staff on a continuously sloping ground at a common interval of 25 m. 0.380, 1.150, 1.635, 2.815, 0.425, 1.825, 2.635, 2.910. R.L. of first point is 110.300. Using rise and fall method find R.L. of other points.

(8 marks)

Or

- (a) What are the sources of errors in levelling. Explain. (7 marks)
- (b) The following are the extracts from a level field book. Some of the readings are missing. Find the missing values and check the results :

Station	BS	IS	FS	Rise	Fall	RL
1	2.285					234.460
2	1.650		X	0.020		
3		2.105			X	
4	X		1.960	X		
5	2.050		1.925		0.340	
6			X	X		232.255

(8 marks)

- VI. (a) What is error of closure ? How it is adjusted ? (7 marks)
- (b) The following table gives the length and bearings of lines of a traverse ABCDE. The length and bearing of EA is missing. Find these values :

Line	Length (m)	Bearings
AB	200	68° 30'
BC	182	41° 30'
CD	98	228° 0'
DE	64	210° 30'
EA	—	—

(8 marks)

Or

- (a) Explain the following 1) Face right and face left (2) Repetition method (3) Reiteration method.
(7 marks)
- (b) From a point 'C' it is required to set out a line CD parallel to a given line AB. Such that ABD is right angle. C and D are not visible from A and B. Compute required length and bearing of CD.

<i>Line</i>		<i>Length</i>	<i>Bearing</i>
<i>BA</i>	...	—	360°
<i>BE</i>	...	51.7 m	290° 57'
<i>EF</i>	...	61.4 m	352° 6'
<i>FC</i>	...	39.3 m	263° 57'

(8 marks)