PVP 14

Code: CE3T5

II B.Tech - I Semester–Regular/Supplementary Examinations – November 2017

SURVEYING
(CIVIL ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks
11 x 2 = 22 M

1. a) Define offset.
   b) Define meridian and bearing.
   c) What is meant by face left and face right condition of a theodolite?
   d) Describe in detail the process of differential levelling.
   e) What do you understand by tacheometry? Discuss the errors in stadia surveying.
   f) Define a contour. State the various characteristics of contour lines.
   g) What purpose do curves serve? What are the elements of simple circular curve?
   h) State the simpson's rule.
   i) Convert the quadrantal bearing to whole circle bearing following i) $S40^0E$ ii) $N30^oW$
   j) Define prismoid, State the prismoidal formula for measurement of volume.
   k) What are the temporary adjustments of theodolite?

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.
3 x 16 = 48 M

2. a) Explain the classification of surveying. 8 M

b) A line was measured with a steel tape which was exactly 30 min at a temperature of 20^{o}c and a pull of 10kg. The measured length was 1650m. The temperature during measurement of 30^{o}c and the pull applied was 15kg. Find the pull length of the line, if cross sectional area of the tape was $0.025cm^2$. The coefficient of expansion of material per degree centigrade is $3.5x10^{-6}$ and modulus of elasticity of the material of tapes is $2.1x10^{6}kg/cm^2$. 8 M

3. a) The bearings observed when traversing with a compass at a place where local attraction was suspected are given below:

LINE	FORE BEARING	BACK BEARING
AB	$S45^{o}30^{'}E$	$N45^{o}30^{'}W$
BC	$S60^{o}00^{'}E$	$N60^{o}40^{'}W$
CD	$N03^{o}20^{'}E$	$S05^{o}30^{'}W$
DA	$S85^{o}00^{'}W$	$N83^{o}30^{'}E$

At what stations do you suspect local attraction? Find corrected bearings of lines. 8 M

b) Explain the rise and fall method of reduction of levels. 8 M

4. a) The offsets (in metres) taken from a chain line to a curved boundary are given below

Chainage (m)	0	5	10	15	20	25	35	45	55	65
Offset(m)	2.5	3.8	8.4	7.6	10.5	9.3	5.8	7.8	6.9	8.4

Find the area between the chain line, the first and last offsets, and boundary by

i) The trapezoidal rule ii) simpson's rule 8 M

b) Derive the formula for the area of a three-level section. 8 M

5. a) List the fundamental lines of a theodolite. Explain briefly the relationships between these lines. 8 M

b) Explain the tangential method of tacheometry. 8 M

6. a) Explain briefly the method setting out a curve with

i) one theodolite ii) two theodolite Method 8 M

b) What are the advantages and disadvantages of Total Station? Describe. 8 M