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Name.....

Reg.No .....

**THIRD SEMESTER B.TECH (ENGINEERING) DEGREE EXAMINATION, DECEMBER 2012**

**CE 09 305/PTCE 09 304 - SURVEYING I  
(2009 ADMISSIONS)**

Time : Three Hours

Maximum : 70 Marks

Answer all questions

**PART A**

1. List out the errors in chain surveying
2. Differentiate between whole circle and reduced bearing.
3. Define the term levelling.
4. What is the purpose of pantagraph?
5. What is meant by fly leveling?

(5 x 2 = 10)

**PART B**

Answer any four questions

6. A steel tape 20 m long standardised at 55° F with a pull of 10 kg was used for measuring a base line. Find the correction per tape length, if the temperature at the time of measurement was 80° F and the pull exerted was 16 kg. Weight of one cubic centimetre of steel = 7.86 g. Weight of tape = 0.8 kg. Modulus of elasticity of steel =  $2 \times 10^6$  kg/cm<sup>2</sup>. Coefficient of expansion of tape per 1° F =  $6.2 \times 10^{-6}$
7. The table below gives the lengths and bearings of the lines of a traverse ABCDE, the length and bearing of EA having been omitted. Calculate the length and bearing of the line EA

Line	Length(m)	Bearing
AB	204.0	87°30'
BC	226.0	26°20'
CD	187.0	280°00'
DE	192.0	210°80'
EA	?	?

8. A level set up an extended line BA in a position 70 metres from A and 100 metres from B reads 1.684 on a staff held at A and 2.122 on a staff held at B, the bubble having been carefully brought to the centre of its run before each reading. It is known that the reduced levels of the top of the pegs A and B are 89.620 and 89.222 respectively. Find (a) the collimation error and (b) The reading that would have been obtained had there been no collimation error.
9. Sketch and label a typical theodolite.
10. Explain trapezoidal and prismoidal formula.
11. Differentiate between check line and tie line

( 4 x 5 = 20 Marks)

Turn over

**PART C**

12 (a) Write short notes on (i) Optical square (ii) Field book

**OR**

(b) Write short notes on (i) Obstacles in chaining (ii) Principle of working from whole to part

13 (a) Describe in detail about three point problem. Also add a short note on local attraction

**OR**

(b) Write short notes on

(i) True and magnetic bearing

(ii) Advantages and disadvantages of Plane tabling

14 (a) Write short notes on (i) Reciprocal Levelling (ii) Methods of contouring

**OR**

(b) The following perpendicular offsets were taken from a chain line to a hedge

Chainage (m)	0	15	30	45	60	70	80	100	120	140
Offsets(m)	7.60	8.5	10.7	12.8	10.6	9.5	8.3	7.9	6.4	4.4

Calculate the area between the survey line, the hedge and the end offsets by  
a) Trapezoidal rule b) Simpson's rule

15 (a) Two tangents intersect at chainage 59+60, the deflection angle being  $50^{\circ}30'$ . Calculate the necessary data for setting out a curve of 15 chains radius to connect the two tangents if it is intended to set out the curve by offset from chords. Take peg interval equals to 100 links, length of the chain being equal to 20 metres (100 links)

**OR**

(b) Write short notes on (i) Clinometer & Edigraph (ii) Ceylon Ghat tracer & Hypsometer

[ 4 x 10 = 40 Marks ]

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