Registration No. : | | | | | | | | | | |

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B. Tech

PECI 5303

Fifth Semester Back Examination – 2014

SURVEYING – II

BRANCH : CIVIL

QUESTION CODE : L 270

Full Marks – 70

Time : 3 Hours

*Answer Question No. **1** which is compulsory and any **five** from the rest.*

The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2 ×10

(a) What do you mean by tangential method of tachometry ? How is it different from stadia method ?

(b) Explain apex distance and versine distance of a curve.

(c) Determine the radius of a 3° circular curve if it is on a 20 m chord.

(d) Explain the term geodetic distance.

(e) What is a satellite station ?

(f) Define term parallax in photogrammetry.

(g) What do you mean by strength of a figure ?

(h) What do you mean by most probable value ?

(i) How do you measure a distance using EDM ?

(j) How total stations are advantageous over traditional surveying ?

P.T.O.

2. Derive the formula for distance and elevation in the tangential method of tachometry. Find the stadia constants from the data given below : 10

Instrument Station	Staff Station	Cross Hair Readings (m)			Distance (m)
		Bottom	Center	Top	
O	P	1.135	1.285	1.435	OP = 30
O	Q	1.025	1.324	1.625	OQ = 60

3. Two parallel railway tracks, 15 m apart, are to be connected by a reverse curve of two arcs of equal radius. If the distance between the tangent points is 120 m, find the common radius. Calculate the offsets required to set out the first arc. 10

4. The distance between two stations P and Q was 8145 m. Reciprocal observations were made from P and Q, the vertical angle to Q = 2°30'40", height of instrument = 1.2 m and height of signal at Q = 4 m. At Q, vertical angle 1° 10' (depression), height of instrument = 1.3 m and height of signal at P = 3.5 m. If the RL of P was 1035.5 m, find the RL of Q. 10

5. What is correlate ? Explain the method of finding probable values using correlates.
Find the most probable values of the angles P, Q and R of a triangle PQR from the following measurements : P = 60° 31' 18.6' (weight = 4), Q = 81° 12' 11.8" (weight = 2) and R = 38° 16' 36.6" (weight = 3), P + Q = 131° 43' 34.6"(weight = 2). 10

6. (a) Explain how the coordinates of a point are worked out from terrestrial photographs. 5

(b) A 1000 m long line on the ground with an average elevation of 685 m measures 11.35 m in a photograph. The focal length of the lens is 210 mm. Find the scale of the photograph for an area having an average elevation of 900 m. 5

7. (a) What are the basic features of a total station ? Explain how field works are carried out using total stations. 5

(b) Explain the procedure to transfer the levels from surface to under ground. 5

8. Write brief notes on any **five** of the following : 5×2

(a) Tachometer table

(b) Expressions for the elements of a reverse curve

(c) Scale of aerial photographs

(d) Level net

(e) Overlaps in photogrammetry

(f) Cross-sectioning

(g) Reverse running profile

(h) Overlaps.