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BCE-031

01459

Diploma in Civil Engineering

Term-End Examination

December, 2010

BCE-031 : ADVANCED SURVEY

Time : 2 hours *Maximum Marks : 70*

Note : *Question No. 1 is compulsory. Attempt any four questions from remaining. Use of calculator is allowed.*

1. Select the most appropriate answer for each of the following multiple choice objective type question given below :- **7x2=14**

(a) The first reading from a theodolite station is :

(i) Fore Sight

(ii) Back Sight

(iii) First Sight

(iv) Intermediate Sight

(b) If Δ is angle of deflection of a Simple Curve of Radius R, Length of curve is :

(i) $\frac{\pi R\Delta}{90°}$ (ii) $\frac{\pi R\Delta}{180°}$

(iii) $\frac{\pi RD}{270°}$ (iv) $\frac{\pi RD}{360°}$

(c) Sounding method is used in :

(i) City Survey

(ii) Aerial Survey

(iii) Hydrographic Survey

(iv) Chain Survey.

(d) An ideal Transition Curve is :

(i) Cubic Parabola (ii) Cubic Spiral

(iii) Clothoid Spiral (iv) True Spiral

(e) The curvature of earth's surface is taken in to consideration if extent of survey is more than :

(i) 100 sq km (ii) 160 sq km

(iii) 200 sq km (iv) 260 sq km

(f) The curve composed of two arcs of different radii having their centres on opposite side of the curve is known as :

(i) Simple curve

(ii) Compound curve

(iii) Reverse curve

(iv) Transition curve.

(g) Greater accuracy in linear measurement is obtained by :

(i) Tacheometry

(ii) Direct chaining

(iii) Theodolites

(iv) Direct Tapping.

2. (a) Define Total Station. Describe concept and working of Total Station. 7

(b) What do you understand by GPS. Explain basic principles with segments. 7

3. (a) Write four basic steps of working with an EDM. 7

(b) Give the full form of abbreviations GPS, AS, SA, GDOP, EDM, NAVSTAR, WGS-84 7

4. (a) Describe elements of simple circular curve with neat sketches. 7

(b) What are the methods of designating a curve. Derive relationship between degree of curve and it's radius. 7

5. To determine the RL of the top of a Television Tower surrounded by transmission building and other buildings a theodolite was set up at A in an adjoining park and the angle of elevation α, was measured and found 33°17'. The reading on BM was 1.585m. The Theodolite was transited and another point B 100m away fixed. The angle of elevation at top was measured 26°24'. The reading on the staff on BM was again 1.585m. If RL of BM is 294.819m. Calculate RL of the top of the television Tower. 14

6. (a) What do you mean by reciprocal levelling. Explain is brief. **4**

(b) The vertical angles to vanes fixed at 0.5m and 3.5m above the foot of the staff held vertically at a point were+2°30′ and 4°12′. Find horizontal distance and RL of the point if the level of the instrument axis is 125.35m above datum. **10**

7. Define ***any Four*** following Terms - **4x3½=14**

(a) Size of theodolite

(b) Trunion Axis

(c) Line of collimation

(d) Latitude and Departure

(e) Face left and Face right

(f) Swinging

(g) Transiting