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BCE-031

DIPLOMA IN CIVIL ENGINEERING
DCLE(G)

Term-End Examination

00060

June, 2016

BCE-031 : ADVANCED SURVEY

Time : 2 hours *Maximum Marks : 70*

Note : *Question no. 1 is* ***compulsory****. Attempt any* ***four*** *questions from the rest of the questions. Use of scientific calculator is permitted.*

1. Select the most appropriate answer for each of the following multiple choice questions given below : *7×2=14*

(a) If Δ is angle of deflection of simple curve of radius R, then length of curve is

(i) $\frac{\pi R \Delta}{90°}$

(ii) $\frac{\pi R \Delta}{180°}$

(iii) $\frac{\pi R \Delta}{270°}$

(iv) $\frac{\pi R \Delta}{360°}$

(b) The least count of theodolite is

(i) 20°

(ii) 20′

(iii) 30°

(iv) 20″

(c) EDMs are used for the measurement of

(i) Bearings

(ii) Angles

(iii) Length

(iv) Reduced levels

(d) The value of Multiplying constant and Additive constant is

(i) 100 and zero

(ii) zero and 100

(iii) zero and 50

(iv) 50 and zero

(e) In space segment, satellites are placed at a height of

(i) 22600 km

(ii) 26200 km

(iii) 26600 km

(iv) 62600 km

(f) Sounding Method is used in

(i) City survey

(ii) Sound survey

(iii) Hydrographic survey

(iv) Aerial survey

(g) The curve consisting of two or more arcs with different radii is called

(i) Reverse curve

(ii) Transition curve

(iii) Deviation curve

(iv) Compound curve

2. (a) What are the fundamental axes of a theodolite and what are the relations among them ? *4*

(b) The field measurements of a closed traverse ABCDE are reproduced in the table. Find the missing data. *10*

Line	Length (m)	Bearing (WCB)
AB	278·6	117°19′
BC	376·4	57°36′
CD	318·4	312°52′
DE	212·6	271°13′
EA	?	?
EA (computed)	– 318·22	

3. (a) Why are curves provided ? Explain with a sketch the different types of curves.

(b) Two tangents having deflection angle 60° are to be joined by a 375 m radius curve. Calculate the necessary data, if it is intended to set out the curve by offsets from chords produced. (C_1 = 6 m and C_n= 14·19 m) *2×7=14*

4. (a) What is tangential method of tacheometry ? What are its advantages and disadvantages over the stadia method ?

(b) The horizontal angle subtended at the theodolite station by a subtense bar with vanes 3·0 m apart is 0°10′40″. Calculate the horizontal distance between theodolite and subtense bar. *2×7=14*

5. (a) What are the three segments of a GPS ?

(b) Describe the principle of working of an EDM. *2×7=14*

6. (a) What is the need of Superelevation and how it is determined ?

(b) Define transition curve. Why and when is it used ? What are its advantages ? *2×7=14*

7. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2} = 14$

(a) Project survey

(b) Taut cable method

(c) Total station

(d) Optical plummet

(e) Temporary adjustment of theodolite

(f) Special surveys

(g) Automatic levels