

4427

BOARD DIPLOMA EXAMINATION, (C-14)
JUNE-2019
DCE - FOURTH SEMESTER EXAMINATION
 SURVEYING – III

Time: 3 Hours

Max.Marks: 80

PART-A**10x3=30M**

- Instructions:** 1) Answer **all** questions. Each question carries **three** marks.
 2) Answers should be brief and straight to the point and shall not exceed five simple sentences.

- 1) In order to determine the RL of top of tower, the theodolite was set up at a distance of 50m from its base. the vertical angle measured to the top of the tower was $15^{\circ} 30'$. The back sight taken on a nearby bench mark of RL 100.000m was 1.250m. Determine RL of top of the tower.
- 2) State the principle of Tacheometry.
- 3) Enumerate the differences between stadia and tangential tacheometries
- 4) State the expression for (i) tangent length, (ii) curve length and (iii) length of long chord of a curve of radius R and deflection angle ϕ .
- 5) Define the terms (a) Point of curve, (b) Point of Tangency
- 6) State any two uses of each (i) Electronic theodolite and (ii) Distomat
- 7) List the types of data used in GIS
- 8) List out the three segments of GPS
- 9) List any three parts of Total Station and State their functions
- 10) What is meant by Resection? State the types of resection carried out using total station.

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PART-B

5x10=50M

Instructions: 1) Answer any **five** questions. Each question carries **ten** marks.

2) Answers should be comprehensive and the criterion for valuation is the content but not the length of answer

11) Determine the elevation of top of chimney (A) from the following observations.

| Instrument at | Sight to | Vertical angle | Staff Reading on BM(m) | Remarks |
|---------------------------------------|----------|----------------|------------------------|--------------------|
| P | A | 19°48' | 2.625 | RL of BM= 150.000m |
| Q | A | 14°25' | 1.510 | Distance PQ=50m |
| A ,P and Q are in same vertical Plane | | | | |

12) Find the RL of church spire C from the following observations taken from two stations A and B, 50m apart. Angle BAC=60°: Angle ABC=50°: Angle of elevation from A to the top of Spire "C"=30°: angle of elevation from B to Spire "C"=29°; Staff readings taken on BM of RL 120.00m from A and B are 3.500m and 1.490m respectively.

13) (a) What is meant by tacheometry? List the instruments used for tacheometry (4M)

(b) Two distances of 50m and 300m were accurately measured on a fairly level ground. The intercepts on a vertically held staff were 1.490m and 3.990 m respectively. Calculate the tacheometric constants of the instrument. (6M)

14) A tacheometer fitted with anallatic lense was set up at an intermediate station C on the line AB and following readings were obtained.

| Instrument at | Staff Station | Vertical Angle | Hair Readings |
|---------------|---------------|----------------|-------------------|
| C | A | 5°20' | 2.250,3.000,3.750 |
| | B | 3°40' | 1.450,1.850,2.250 |

Determine the length of line AB and also RL of B, if RL of A=500.000m.
 Multiplying constant=100 and additive constant=0.

- 15) (a) Draw the neat sketch of simple curve and show the components
(b) Calculate the necessary data to set out a circular curve of radius 100m and deflection angle 30° by the method of perpendicular offsets from tangent (take interval = 5m).
- 16) Two tangents intersect at a point B of chainage 410m. The deflection angle being 38° . Calculate the data for setting out a simple circular curve of radius 300m by Rankine's method of deflection angles with a peg interval of 30m. Also prepare the table if theodolite used was having 20" least count.
- 17) Explain how traversing is done using Total Station.
- 18) (a) State any six applications of GIS in civil Engineering (6M)
(b) Write a short note on Electronic theodolite (4M)

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