17419

16117

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) **Attempt any SIX of the following:** **12**

(i) State the uses of contour maps.

(ii) Define:

1) Contour

2) Contour interval

(iii) Define Grade contour.

(iv) Define:

1) Telescope inverted

2) Telescope normal

(v) Define the term departure and latitude.

(vi) What are the different fundamental axes of theodolite?

Marks

(vii) State any two advantages of total station over dumpy level and theodolite.

(viii) State the two methods of setting out curves.

b) **Attempt any <u>TWO</u> of the following:** **8**

(i) State the methods of locating contours and explain direct method.

(ii) State the application of remote sensing in various fields.

(iii) Describe the temporary adjustment of theodolite.

2. Attempt any <u>FOUR</u> of the following: **16**

a) State the methods of contour interpolation and explain in brief any one.

b) Differentiate between trapezoidal and prismoidal formula for computation of volume.

c) The following readings were recorded by a planimeter with the anchor point inside the figure. IR = 9.377, FR = 3.336, M = 100 cm^2 and C = 23.521. Calculate the area of the figure when it is observed that the zero mark of the dial passed the index mark once in the anticlockwise direction.

d) State limitations of tacheometery.

e) Compare theodolite traversing by included angle method with deflection angle method. Which one is suitable.

f) Mention different sources of errors in theodolite surveying.

3. Attempt any <u>FOUR</u> of the following: **16**

a) Explain the procedure adopted with micro optic theodolite to find reduced level.

b) State four component parts of digital theodolite and state their purpose.

c) How the layout is done using total station?

d) Describe the temporary adjustment of digital level.

e) State the principle of EDM with sketch.

f) Draw a neat sketch of simple curve showing all elements.

Marks

4. Attempt any FOUR of the following: **16**

a) How will you locate grade contour on contour map?

b) Write four applications of GIS.

c) Differentiate between active system and passive system of remote sensing.

d) Explain principle of stadia method.

e) Write down the procedure for determination of tacheometric constants.

f) State the meaning of degree of curve and long chord.

5. Attempt any TWO of the following: **16**

a) The following records are obtained in a traverse survey, where the length and bearing of the last line were not recorded.

Line	Length (m)	Bearing
AB	75.50	30°24′
BC	180.50	110°36′
CD	60.25	210°30′
DA	?	?

Compute the length and bearing of line DA.

b) The coordinates of two points P and Q are as follows:

Point	Coordinates	
	N	E
P	982.5	825.2
Q	1198.6	576.4

Find the length and bearing of line PQ.

c) Calculate the horizontal distance CD and RL of D, when the constants of instrument are 100 and 0.15.

Inst. stn.	Staff stn.	Vertical angle	Hair readings (m)	Remark
C	BM	– 5°20′	1.520, 1.800, 2.450	RL of BM = 750.50m
C	D	+ 8°12′	0.750, 1.500, 2.250	

Marks

6. Attempt any TWO of the following: **16**

a) Calculate the ordinates at 25 m interval to set out a circular curve having a long chord of 300 m and versed sine of 10 m.

b) Describe to use of digital theodolite for measurement of horizontal and vertical angle.

c) (i) What are the additive and multiplying constants of planimeter?

(ii) State the possible error while using planimeter for finding area of an irregular figure.