Total No. of Questions : 10] SEAT No. :

P3524 [Total No. of Pages : 3

[4858]-1006
T.E. (Civil)
ADVANCED SURVEYING
(2012 Pattern)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q.No. 1 or Q. No. 2, Q.No. 3 or Q. No. 4, Q.No. 5 or Q. No. 6, Q.No. 7 or Q. No. 8, Q.No. 9 or Q. No. 10.***
2) ***Neat diagrams must be drawn whenever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) State the objects of Geodetic Surveying and explain Secondary Triangulation? **[5]**

b) Describe three important segments of GPS system with illustration. **[5]**

OR

Q2) a) Differentiate between plane surveying and Geodetic surveying. **[5]**

b) What are various potential errors sources that affect GPS signal or result? **[5]**

Q3) a) Explain the analytical method of solving three point problem. **[5]**

b) Write a note on correction for curvature and refraction. **[5]**

OR

Q4) a) Explain and calculate data for intersecting circle method of graphical Soluction. **[6]**

b) Describe in brief location survey of a long bridge. **[4]**

Q5) a) What do you mean by a spherical triangle and how do you find out the length of sides of a spherical triangle? **[5]**

b) Define Geodetic quadrilateral and describe methods of its adjustment. **[5]**

P.T.O.

c) Find the most probable values of the angles A,B and C of a triangle ABC from the following observations (Use method of differences). **[8]**

Angle	Weight
Angle A = 65° 15' 30"	3
Angle B = 51° 11' 25"	2
Angle C = 63° 32' 34"	4

OR

Q6) a) Define following terms **[5]**

i) True value,

ii) Most probable value,

iii) Conditioned Quantity

iv) mistakes,

v) Weight of an obeservation

b) Explain clearly what is meant by side equation. How would you adjust a geodetic quadrilateral (without central station). **[5]**

c) Four angles are measured at a station closing the horizon. The values of the angles are : **[8]**

A = 83° 42' 28.75"	weight 3
B = 102° 51' 43.26"	weight 2
C = 94° 38' 27.22"	weight 4
D = 79° 23' 23.27"	weight 2

Give the corrected values of the angles. (use Normal equation)

Q7) a) Define and explain the following terms with neat sketch : **[5]**

i) Exposure station ii) swing

iii) Azimuth iv) principal line

v) Tilt

b) What are the different types of aerial photographs? Discuss any one briefly giving their use. **[4]**

c) A section line AB appears to be 10.16 cm on photograph for which the focal length is 16 cm. The corresponding line measures 2.54 cm on a map which is to a scale 1/15000. The terrain has an average elevation of 200m above mean sea level. Calculate flying height of the aircraft, above mean sea level, when the photograph was taken. **[7]**

OR

Q8) a) Explain Relief displacement and write the conclusions that can be drawn from expression of relief displacement. **[5]**

b) What are the different stereo viewing techniques in digital photogrammetry? **[4]**

c) A line AB 2000m long, lying at an elevation of 500m measures 8.65 cm on a vertical photograph for which focal length is 20 cm. Determine the scale of the photograph in an area the average elevation of which is about 800 m. **[7]**

Q9) a) What are the functionalities of GIS? **[5]**

b) Give the application of remote sensing with respect to natural hazards and that of archaeology. **[5]**

c) Explain the advantages and disadvantages of the raster and vector data models. **[6]**

OR

Q10)a) What are the components of a GIS? **[5]**

b) Define remote sensing and enlist the advantages and limitations of remote sensing. **[5]**

c) Explain the applications of GIS in Visibility analysis and slope analysis.**[6]**