

Total No. of Questions : 10]

SEAT No. :

P3243

[Total No. of Pages : 3

[5353] - 106
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) What is SBPS? State and explain GAGAN system. **[5]**

OR

Q2) a) Define, **[5]**

- i) Well conditioned triangle
- ii) Strength of a figure
- iii) Accuracy of Triangulation
- iv) Indivisibility of stations
- v) Station marks

b) Differentiate between absolute positioning and relative positioning. **[5]**

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

b) Explain with sketch axis signal correction. **[5]**

OR

P.T.O.

- Q4)** a) Explain the three point problem and method of solution of three point problem using Tracing paper. [5]
- b) Enlist the methods of setting out of tunnel; explain anyone with a neat sketch. [5]

- Q5)** a) Define with example [6]
- i) Direct and indirect observation
 - ii) Independent and conditioned quantity
 - iii) Observation equation and conditioned equation
- b) Explain stepwise procedure of computations of sides of spherical triangle by spherical trigonometry. [4]
- c) The following angles are measured at a station closing the horizon. The values of the angles are: [8]

$$A = 77^{\circ}14'20'' \text{ weight } 4$$

$$B = 49^{\circ}40'35'' \text{ weight } 3$$

$$C = 53^{\circ}04'52'' \text{ weight } 2$$

Give the corrected values of the angles. (Use method of correlates)

OR

- Q6)** a) Define: [5]
- i) True error,
 - ii) Most probable value,
 - iii) Conditioned Quantity,
 - iv) Residual error,
 - v) Weight of an observation.
- b) What kinds of error in triangulation adjustment? Explain in detail. [5]
- 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 = $65^{\circ} 15' 30''$	3
Angle B = $51^{\circ} 11' 25''$	2
Angle C = $63^{\circ} 32' 34''$	4

- Q7) a)** Define the following terms with sketch: [8]
- i) Principal point, ii) Scale,
 - iii) Air base distance, iv) Digital elevation model.
- b) The scale of aerial photograph is 1 : 10000, effective at an average elevation of terrain of 500 m. The size of aerial photograph is 230mm x 230mm. Focal length of camera lens is 20 cm. Speed of aircraft is 180 kmph, longitudinal overlap is 60% and side overlap is 30%. Determine the number of photographs required to cover an area of 30kmx22.5 km. Also determine exposure interval and flying height. [8]

OR

- Q8) a)** Derive an expression for Relief displacement due to ground. [8]
- b) A pair of photograph is taken with a camera having focal length 15 cm. The scale of photography is 1 : 10000 and photo base is 5.65 cm. The measured parallax of a vertical control point having an elevation 140 m is 87.28 mm. Compute the elevation of another point P whose measured parallax is 84.18 mm. [8]

- Q9) a)** Define remote sensing. State how it differs from Photogrammetry. [4]
- b) Give the application of remote sensing with respect to natural hazards.[4]
- c) What is GIS? State various GIS software's and Explain how remote sensing and GIS are linked. [8]

OR

- Q10)a)** State and explain various components of GIS. [5]
- b) Differentiate between raster data and vector data. [5]
- c) Explain Remote sensing applications in disaster management with suitable example. [6]

