

Total No. of Questions :10]

SEAT No. :

[Total No. of Pages :4

P2834

[4958] - 1006

T.E. (Civil)

**ADVANCE SURVEYING
(2012 Course) (Semester - II)**

Time : 2½ Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Figures to the right indicate full marks.*
- 4) Assume Suitable data if necessary.*

Q1) a) Define, [5]

- i) Well conditioned triangle
- ii) Strength of a figure
- iii) Accuracy of triangulation
- iv) Towers
- v) Phase of a signal

b) State any five advantages of space based positioning systems. [5]

OR

Q2) a) Define triangulation, state the object of triangulation and state its applications. [5]

b) Describe briefly various applications of Global Positioning System. [5]

P.T.O.

- Q3) a)** Explain the three point problem and method of solution of three point problem using Tracing paper and station pointer method. [5]
- b) Describe in brief how location survey for pier of a bridge is carried out at site. [5]

OR

- Q4) a)** State various methods of locating the position of boat in hydrographical surveying and explain briefly. [5]
- i) One angle from the shore and other from the boat
- ii) Intersecting ranges
- b) Describe the procedure for setting out of pipelines and sewers, explain with a sketch. [5]

- Q5) a)** What do you mean by a spherical excess and how do you find out the Area of a spherical triangle? [5]
- b) Define the following terms [5]
- i) Conditioned equation
- ii) Weight of an observation
- iii) Most probable value
- iv) Mistake
- v) True error
- c) The angles were A, B were measured as follows. Find the most probable values of the angles A and B (Use direct method) [8]

Angle	Weight
$A = 45^{\circ} 30' 10''$	2
$B = 40^{\circ} 20' 20''$	3
$A+B = 85^{\circ} 50' 10''$	1

OR

- Q6)** a) Explain laws of weight. [5]
- b) Explain step by step procedure for figure adjustment for a geodetic quadrilateral without central station. [5]
- c) Neglecting the spherical excess, adjust the angle of triangle of which observed values are (Use method of correction) [8]

Angle	Weight
Angle A = $48^{\circ} 18' 22''$	3
Angle B = $76^{\circ} 32' 47.2''$	1
Angle C = $55^{\circ} 08' 53.8''$	3

- Q7)** a) Write a note on Radial line method of plotting. [5]
- b) Write short notes on: Crab and Drift [5]
- c) The scale of aerial photograph is 1 : 25000, effective at an average elevation of terrain of 335 m. The size of aerial photograph is 230 mm $\times$ 230 mm. Focal length of camera lens is 200 mm. Speed of aircraft is 270 km/h, longitudinal overlap is 65% and side overlap is 28%. Determine the number of photographs required to cover an area of 150km $\times$ 105 km. [6]

OR

- Q8)** a) Define the following terms [5]
- Air base distance
 - Relief displacement
 - Oblique photograph
 - Principal point
 - Mosaic
- b) Define Ground Control Points, state their role in photogrammetry and bring out difference between pre marked and post marked Ground Control Points (GCP). [5]
- c) A line measured 11.00 cm on a photograph taken with camera having focal length of 21.5 cm. The same line measured 3 cm on a map drawn to the scale 1:45000. Calculate the flying height of the aircraft, if the average altitude is 350m. [6]

- Q9)** a) Define remote sensing. State importance of digital image processing. **[5]**
- b) What is GIS? State various GIS software's and explain how remote sensing and GIS are linked? **[5]**
- c) Explain the applications of GIS in Visibility analysis and slope analysis. **[6]**

OR

- Q10)** a) What are the components of a GIS? **[5]**
- b) Enlist advantages and limitations of remote sensing. **[5]**
- c) Discuss in brief the various data sources to build GIS for civil engineering applications such as watershed development. **[6]**

