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°14’20” weight 4

B = 49°40’35” weight 3

C = 53°04’52” 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° 15’ 30”	3
Angle B = 51° 11’25”	2
Angle C = 63° 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]**