Total No. of Questions :10]

SEAT No. :

P2834

[Total No. of Pages :4

[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° 30’ 10”	2
B = 40° 20’ 20”	3
A+B = 85° 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° 18' 22"	3
Angle B = 76° 32' 47.2"	1
Angle C = 55° 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 × 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 × 105 km. **[6]**

OR

Q8) a) Define the following terms **[5]**

i) Air base distance

ii) Relief displacement

iii) Oblique photograph

iv) Principal point

v) 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]**