[5153]-506

T.E. (Civil)

ADVANCED SURVEYING

(2012 Course) (Semester - II)

Time : 2½ Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1) *Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right indicate full marks.*
4) *Use of calculator is allowed.*
5) *Assume suitable data, if necessary.*

Q1) a) Define Geodetic Surveying. What factors are to be considered while selecting a best triagulation figure or system? **[5]**

     b) Describe different types of error in GPS system. **[5]**

OR

Q2) a) Elevations of two triangulation stations A and B, 104 Km apart are 130 m and 434m respectively. A peak C, 75 Km from station A, has an elevation of 220 m. Ascertain if station A is visible from B or not. Also find the minimum height of scaffolding at B, so that the line of sight has a minimum 2.5 m clearance anywhere. **[6]**

     b) State advantages of space based positioning systems. **[4]**

Q3) a) Explain the three point problem and method of solution of three point problem using Tracing paper method. **[5]**

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

OR

Q4) a) The following observations were taken in a trigonometric levelling survey. Angle of depression to P at Q = 1°25'22" Height of instrument at Q = 1.35 m Height of signal at P = 4.25 m Horizontal distance between P & Q = 6945 m Coefficient of refraction = 0.07 If the R.L. of Q is 455.32 m, calculate R.L. of P. **[6]**

     b) While doing an underground survey describe the transferring the surface alignment through a Shaft? **[4]**

P.T.O.

Q5) a) Define **[5]**

       i)   Well condition triangle

       ii)   Strength of a figure

       iii)   Accuracy of triangulation

       iv)   Towers

       v)   Station marks

   b) Explain stepwise procedure of computations of sides of a Spherical Tringle by Spherical Trigonometry. **[5]**

   c) The following are three angles P, Q and R observed at a station 'O', closing the horizon. **[8]**

Angle P = 84° 15' 12" wt 20

Angle Q = 125° 13' 15" wt 15

Angle R = 150° 31' 18" wt 12

Determine the corrected angles. Use method of correction.

<center>OR</center>

Q6) a) Expalin steps by step procedure for figure adjustment for a geodetic quadrilateral without central station. **[6]**

   b) What is spherical excess? Explain with sketch. **[4]**

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

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

Q7) a) Write short notes on: **[6]**

       i)   Crab and Drift

       ii)   Flight planning

b) What are the different types of aerial photographs? **[4]**

c) A section line AB appears to be 10.16 cm on a photograph for which the focal length is 16 cm. The corresponding line measures 2.54 cm on a map which is to a scale 1.50000 The terrain has an avg, elevation of 200 m above Mean Sea Level. Calculate flying height of aircraft, above Mean sea Level, when the photograph was taken. **[6]**

OR

Q8) a) Explain the principal of stereoscopy in details with sketch and give conditions for aerial photography for stereoscopy. **[5]**

b) What are the different stereo viewing techniques in digital photogrammetry? **[5]**

c) A line AB 2000m long, lying at an elevation of 500 m measures 8.65cm on a vertical photography for which focal length is 20 cm. Determine the scale of the photograph in an area the average elevation of which is about 800m. **[6]**

Q9) a) What is GIS. State various GIS software's and expalin how remote sensing and GIS are linked. **[8]**

b) What is atmospheric window? Explain its significance. **[8]**

OR

Q10) a) Explain the advantages and disadvantages of the raster and vector data models. **[8]**

b) Write a not e on applications of remote sensing and explain the applications of GIS in Visibility analysis. **[8]**

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