Total No. of Questions : 12]

SEAT No. :

P2382

[Total No. of Pages : 4

[5153]-5
T.E. (Civil)
ADVANCED SURVEYING
(2008 Pattern) (Semester - I)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates:

1) ***Answer any three questions from each section.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***
5) ***Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***
6) ***Assume Suitable data, if necessary.***

SECTION-I

Q1) a) What are the different types of errors in GPS observations and explain anyone of them. **[5]**

b) Explain with neat sketches working of GPS in association with space, control and user segment. **[8]**

c) Define Geodetic Surveying. What factors are to be considered while selecting a triangulation station? **[5]**

OR

Q2) a) What is GPS? State and explain various components of GPS. **[5]**

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

c) Elevations of two triangulation stations A and B, 110 Km apart are 113 m and 432 m respectively. A peak C, 85 km from station A, has an elevation of 220.50m. A is a ground station. Ascertain if it 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. **[8]**

P.T.O.

Q3) a) The angles from triangle ABC were recorded as follows. Calculate the corrected values of angles. Use method of Correlates **[8]**

A=77°14'22" Weight-2

B=49°36'21" Weight-3

C=53°09'53" Weight-4

b) Explain step by step the procedure of adjustment of the observed spherical angle of the triangle. **[8]**

OR

Q4) a) Find the most probable values of the angles A and B from the following observations:

A=70°40'45"with weight 1;

B=62°51'27"with weight 2;

A+B=133°32'34"with weight 3;

Use method of correction. **[8]**

b) Define the term any four **[8]**

i) MPV
ii) True Value
iii) Residual error
iv) Wight of an observation
v) Independent quantity.

Q5) a) Explain with neat sketch how the alignment of tunnel is transferred from surface to the underground. **[5]**

b) Write short note on Curvature correction. **[5]**

c) The following reciprocal observations were made from points A and B **[6]**

Horizontal distance between A and B=6000 m

Angle of Elevation of B at A=1°07'02"

Angle of depression of A at B=1°00'05"

Height of instrument at A=1.40 m

Height of instrument at B=1.55 m

Height of signal at A=7.00 m

Height of signal at B=6.50 m

Find the difference of level between A and B. Take R sin 1"=30.88m.

OR

Q6) a) Derive the equation for determination of difference in elevation between two points for angle of elevation. **[5]**

b) The following observations were taken in a trigonometric levelling survey. Angle of depression to P at Q=1°42'22" Height of instrument at Q=1.18m Height of signal at P=4.22m Horizontal distance between P & Q=6945m coefficient of refraction=0.07 If the R.L. of Q is 345.32 m, calculate R.L. of P. **[6]**

c) Write short note on Axis signal correction. **[5]**

SECTION-II

Q7) a) Explain the principal of stereoscopy in details with sketch and give conditions for aerial Photography for stereoscopy. **[9]**

b) Define parallax of a point and describe the procedure of measuring parallax difference using a parallax bar. **[9]**

OR

Q8) a) A section line AB appears to be 15.10 cm on a photograph for which the focal length is 15 cm. the corresponding line measures 2.44 cm on a map which is to a scale 1:50000. The terrain has an avg. elevation of 320 m above Mean Sea Level. Calculate flying height of aircraft, above Mean Sea Level,when the photograph was taken. **[9]**

b) What are the various methods of determining scale of Vertical photograph? **[9]**

Q9) a) Write a note on **[8]**

i) Atmospheric windows.

ii) Active and Passive remote sensing.

b) Explain in detail applications and limitations of GIS. **[8]**

OR

Q10)a) Explain use of remote sensing in Civil Engg. Also Compare Arial photograph with satellite images. **[8]**

b) What is GIS? Explain in detail the component parts of GIS. **[8]**

Q11)a) Describe briefly how the soundings are located by Two Angles from the shore. **[5]**

b) What are the methods of locating Sounding? Explain anyone of them. **[5]**

c) What is mean by Sounding? Enumerate different instruments required for sounding and Explain Echo Sounding. **[6]**

OR

Q12)a) Define Hydrographic surveying and enlist various objectives of hydrographic surveying. **[5]**

b) When it is required to reduce the planimetric position of a sounding station by solving a three point problem. Enlist the method to solve a three point problem. Explain any one mechanical method. **[6]**

c) Define Tide and Enlist the different types of Tidal Gauges. **[5]**

❄ ❄ ❄