Total No. of Questions : 10]

SEAT No :

P1686

[Total No. of Pages : 3

[5058]-306
T.E. (Civil)
ADVANCED SURVEYING
(2012 Pattern) (Semester - II)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer to the Two sections should be written in separate answer books.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume Suitable data if necessary.***

Q1) Attempt the following:

a) Explain various points to be considered while selecting triangulation station. **[5]**

b) Explain with neat sketches working of GPS in association with space, control and user segment. **[5]**

OR

Q2) Attempt the following:

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

b) Explain in detail setting out of a tunnel site. **[5]**

Q3) Attempt the following:

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

b) Two Triangulation stations A and B 110 km apart having elevations 125 m and 502 m respectively. The intervening peak C 60 km from A has an elevation of 131 m. Ascertain if point A is visible from B. If necessary find the height of scaffolding at B so that the line of sight has a minimum clearance of 3 m anywhere. **[5]**

OR

Q4) Attempt the following:

a) Explain with neat sketch the analytical method of solving three points in hydrographic survey. **[5]**

P.T.O.

b) The following reciprocal observations were made from points A and B

i) Horizontal distance between A and B = 4950m

ii) Angle of Elevation of B at A = 1° 05′20″

iii) Angle of depression of A at B = 1° 01′05″

iv) Height of instrument at a = 1.45m

v) Height of instrument at B = 1.55m

vi) Height of signal at A = 6.25m

vii) Height of signal at B = 6.35m

Find the difference of level between A and B.

Take R sin 1″= 30.88m **[5]**

Q5) Attempt the following

a) Describe any two laws of weights of an observation with help of suitable example. **[8]**

b) What do you understand by method of correlates? **[10]**

The angles from triangle ABC were recorded as follows. Calculate the corrected values of angles. Use method of Correlates

A = 77° 14' 22"	Weight - 2
B = 49° 40' 31"	Weight - 1
C = 53° 04' 53"	Weight - 3

OR

Q6) Attempt the following:

a) Define the terms any four

i) MPV

ii) True Value

iii) Residual error

iv) Weight of an observation

v) Independent quantity **[8]**

b) Find the most probable values of the angles A,B and C from the following observations at one station:

A = 76° 42' 45" with weight 4

A + B =134° 36' 34" with weight 3

B + C =185° 35' 27" with weight 2

A + B + C =262° 18' 11" with weight 1

Use method of Normal Equation **[10]**

Q7) Attempt the following:

a) What are the various methods of determining scale of Vertical photograph? **[8]**

b) The ground length of a line PQ is known to be 550m and the elevations of P and Q are respectively 500m and 300m above mean sea level. On a vertical photograph taken with a camera having focal length of 20 cm include the images p and q of these points and their photographic co-ordinates are xp = + 2.70cm, yp = +1.38cm, xq=-1.92cm, yq=+3.65cm.

The distance pq scaled directly from photograph 5.221 cm. Calculate the flying height above the mean sea level. **[8]**

OR

Q8) Attempt the following:

a) Define parallax of a point and describe the procedure of measuring parallax difference using a parallax bar. **[8]**

b) Explain the following terms: **[8]**

i) Crab Drift

ii) Tilted and Oblique Photographs

Q9) Attempt the following:

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]**

OR

Q10) Attempt the following:

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

i) Digital image processing.

ii) Active and Passive remote sensing.

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

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