Total No. of Questions : 12]

P744

SEAT No. :

[Total No. of Pages : 4

[4263] - 205
T.E. (Civil)
ADVANCED SURVEYING
(2008 Pattern) (Semester - II)

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

Instructions to the candidates:

1) ***Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6 from section I and Q.7 or Q.8, Q.9 or Q.10, Q.11 or Q.12 from section II***
2) ***Answers to the two sections should be written in separate answer books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***
5) ***Use of logarithmic table electronic pocket calculator and steam table is allowed.***
6) ***Assume suitable data, if necessary.***

SECTION - I

Q1) a) State the objects of Geodetic Surveying and explain Secondary Triangulation? **[8]**

b) State and explain various components of GPS **[6]**

. c) What are the various points to be considered for selecting a triangulation station? **[4]**

OR

Q2) a) What are various potential error sources that affect GPS signal or result? **[5]**

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

c) There are two stations A and B at elevations of 240 m and 280 m respectively. The distance between A and B is 60 Km. Find the minimum height of target required at B so that line of sight may not pass near the ground than 2 meters. The intervening ground may be assumed to have a uniform elevation of 200 meters. **[8]**

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Q3) a) The angles of triangle ABC were recorded as follows: **[8]**

Angle	Weight
A = 77° 14’ 20’’	4
B = 49° 40’ 35’’	3
C = 53° 04’ 52’’	2

Give the corrected values of the angles

b) Explain stepwise procedure of computations of sides of a Spherical Triangle by Spherical Trigonometry. **[4]**

c) Define the following terms **[4]**

i) Conditioned equation

ii) Weight of an observation

iii) Most probable value

iv) Mistake

OR

Q4) a) Explain step by step procedure for figure adjustment for a geodetic quadrilateral with central station **[6]**

b) What is spherical excess? **[2]**

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

Q5) a) Derive the expression for the difference of level between two points A and B a distance D apart with the vertical angle as the angle of elevation from A to B. The height of the instrument at A and that of the signal at B are equal. **[8]**

b) Describe the methods of setting out of tunnel, explain with a neat sketch. **[8]**

OR

Q6) a) Describe the procedure for setting out of a pipeline and sewers **[8]**

b) Write a note on correction for curvature and refraction in geodetic surveying **[8]**

SECTION - II

Q7) a) Derive an expression for displacement due to ground relief. **[8]**

b) A tower, lying on a flat area having an average elevation of 800 m above msl, was photographed with a camera having a focal length of 24 cm. The distance between the images of top and bottom of the tower measures 0.34 cm on the photograph. A line AB, 200 m long on the ground, measures 12.2 cm on the same photograph. Determine the height of the tower if the distance of the image of the top of the tower is 8.92 cm, from the principal point. **[10]**

OR

Q8) a) Write short notes on: **[10]**

i) Crab and Drift

ii) Flight planning

and define principal point and photo nadir

b) Write a note on Radial line method of plotting. **[8]**

Q9) a) What is raster and vector data. How do you analyse the satellite image for civil engineering projects, draw sketches to support your answer.**[8]**

b) State and explain various components of GPS. Differentiate between absolute positioning and relative positioning. **[8]**

OR

Q10) a) What is GIS. State various GIS software's and explain how remote sensing and GIS are linked. **[8]**

b) What is the working principle of Total station? How will you use Total station to determine the remote distance (RDM) **[8]**

Q11) a) Define hydrographical surveying? How hydrographical survey shall be beneficial? **[8]**

b) What is sounding? State use of lead line for measuring sounding and explain with a neat sketch. **[8]**

OR

Q12) a) State various methods of locating the position of boat in hydrographical surveying and explain briefly **[8]**

i) One angle from the shore and other from the boat

ii) Intersecting ranges

b) What is fathometer? Explain its use in assessing the amount of silt deposition in the water body. **[8]**

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