Total No. of Questions :12]

SEAT No. :

P2803

[Total No. of Pages :3

[4958]-102
T.E. (Civil)
ADVANCED SURVEYING
(2008 Pattern) (Semester - I)

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) ***Figures to the right indicate full marks.***

SECTION - I

Q1) a) Differentiate between Triangulation and Traversing and Trilateration. **[8]**

b) What are the various potential error sources that affect the GPS signals?**[8]**

OR

Q2) a) Define Geodetic Surveying? What factors are to be considered while selecting a best triangulation figure or system? **[8]**

b) Explain with neat sketches, commonly used layouts of triangulation systems. **[8]**

Q3) a) Explain clearly what is meant by side equation? How would you adjust a geodetic quadrilateral without central station? **[8]**

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

i) True Value ii) True Error

iii) Most Probable Value iv) Residual Error

OR

Q4) a) What do you mean by weight of an observation? State the rules of assigning weight to the field observations. **[8]**

b) What is spherical excess? What are the methods of computing the sides of a spherical triangle? Explain any one method. **[8]**

P.T.O.

Q5) a) The following reciprocal observations were made from two points P & Q;

Horizontal distance between P & Q = 33128 m

Angle of Depression of Q at P = 6' 20"

Angle of Depression of P at Q = 8' 10"

Height of Signal at P = 4.87 m

Height of Signal at Q = 4.07 m

Height of Instrument at P = 1.27 m

Height of Instrument at Q = 1.34 m

Calculate **[10]**

i) The R.L. of Q, if that of P is 1248.65 m &

ii) The average co-efficient of refraction at the time of observations.

Take RSin 1" = 30.88 m.

b) Explain with a neat sketch how the alignment of tunnel is transferred from surface to the underground. **[8]**

OR

Q6) a) Correct the observed altitude for the height of signal, refraction and curvature, from the following data; **[10]**

Observed altitude = + 2^{o} 48 ' 39"

Height of Instrument = 1.12 m

Height of Signal = 4.87 m

Horizontal distance = 5112 m

Coefficient of Refraction = 0.07 m

RSin 1" = 30.88 m.

b) Describe in brief the location survey of a long bridge. **[8]**

SECTION - II

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

b) Define the following terms; **[8]**

i) Principal point ii) Scale

iii) Air base iv) Overlap

OR

Q8) a) Explain in detail the flight planning for an area. **[8]**

b) Differentiate between aerial photograph and Map. **[8]**

Q9) a) Explain with neat sketches the terms Spectral Signature and Atmospheric Windows. **[6]**

b) Explain what are the elements of image interpretation. **[6]**

c) Write a note on applications of remote sensing. **[6]**

OR

Q10)a) Explain with neat sketches the geo-stationary and sun-synchronous Satellites. **[6]**

b) Explain Spectral and Radiometric Resolution. **[6]**

c) What are the capabilities or functions available in G.I.S. **[6]**

Q11)a) Derive an expression for solving three point problem by analytical method. **[8]**

b) What is Index Error? How it is determined? **[8]**

OR

Q12) a) What is meant by Sounding? Discuss various methods of taking sounding. **[8]**

b) Explain the phenomenon of tides and different methods of measuring the tide level. **[8]**