

Total No. of Questions : 10]

SEAT No. :

**P3563**

**[5560]-506**

[Total No. of Pages : 3

**T.E. (Civil)**

**ADVANCED SURVEYING  
(2015 Pattern) (Semester-II)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) Answer 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 sketches must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data if necessary.

**Q1) a)** Explain the concept of intervisibility & height of triangulation station with neat sketches? **[5]**

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

OR

**Q2) a)** Explain the method of co-relates of adjustment of braced Quadrilateral. **[5]**

b) List out various potential error sources which affect the GPS signal or result. **[5]**

**Q3) a)** Explain with neat sketches any two equipments used for measuring sounding. **[5]**

b) How would you determine the flying height of a vertical photograph? **[5]**

OR

**Q4) a)** What is hydrographic surveying? State the various objects of carrying out hydrographic surveying. **[5]**

b) Explain the process of flight planning with reference to (i) Flying height, (ii) Number of photographs required to cover a given area, (iii) Time interval between exposures. **[5]**

**P.T.O.**

**Q5) a)** Explain clearly what is meant by side equation? How would you adjust a geodetic quadrilateral without central station? [8]

b) What is meant by Satellite Station? What is its necessity in Geodetic Surveying? Explain how you would reduce the angles observed at the satellite station to the centre. [8]

OR

**Q6) a)** What is spherical excess? What are the methods of computing the sides of a spherical triangle? Explain any one method. [8]

b) Find the most probable value of the angle A, B and C of a Triangle ABC from the following observation. Use method of correlates. [8]

Angle	Weight
A = $65^{\circ} 15'30''$	3
B = $51^{\circ} 11'25''$	2
C = $63^{\circ} 32'34''$	4

**Q7) a)** Describe the procedure of measuring parallax difference using a Parallax bar. [5]

b) Distinguish between terrestrial and aerial photography. Under what circumstances you will recommend them. [5]

c) Vertical photographs were taken from height of 3048m, the focal length of camera lens being 15.24 cm. If the prints were 22.86 cm\*22.86 cm and the overlap 60%, what was the length of the air base? [6]

OR

**Q8) a)** Discuss in brief the basic characteristics of photographic images used in photo interpretation. [5]

b) How would you determine the flying height of a vertical photograph? [5]

c) In an aerial survey, if the speed of the aeroplane is 160 km/hr, the size of the photograph is 18 cm \* 18 cm and scale adopted is 1/10000, find the interval between the exposures if the end overlap is 55%. [6]

- Q9)** a) Describe in brief the location survey of a long bridge. [5]
- b) Write short note on axis signal correction. [5]
- c) Derive an expression with a neat sketch, how the difference in elevation between two points, by single observation can be determined, when the observed angle is the angle of depression. [8]

OR

- Q10)** a) Explain with neat sketch how the alignment of tunnel is transferred from surface to the underground. [5]
- b) Explain how you will take into account the effect of curvature and refraction correction in angular measure. [5]
- c) Explain clearly the procedure of determining the difference in elevation of two points by reciprocal observation in geodetic trigonometric levelling. [8]

