

B.TECH. SEM -V (CIVIL) 2014 COURSE (CBCS) : SUMMER -

2018

SUBJECT: ADVANCED SURVEYING

Day: **Tuesday**
Date: **22/05/2018**

S-2018-2330

Time: **10.00 AM TO 01.00 PM**
Max. Marks: 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labelled diagrams **WHEREVER** necessary.
- 4) Assume suitable data if necessary.
- 5) Use of electronic non programmable calculator is **ALLOWED**.

Q.1 a) Using the principle of least square derive the formula for obtaining most probable value of direct observation of unequal weight. [04]

b) Determine most probable values of angles P & Q from following observations. [06]
Using method of normal equations

$$\begin{aligned}\angle P &= 25^{\circ} 18' 16'' \\ \angle Q &= 34^{\circ} 15' 22'' \\ \angle P + \angle Q &= 59^{\circ} 33' 42''\end{aligned}$$

OR

a) Define following terms: [05]

- | | |
|------------------------------------|-------------------------------------|
| i) Independent quantity | iii) Most probable value |
| ii) Conditioned quantity | iv) True value of a quantity |
| v) Weight of an observation | |

b) State and explain various types of errors. [05]

Q.2 a) State important features of modern Electronic total station. [05]

b) Describe temporary adjustments of Electronic total station. [05]

OR

a) Bring out concept and necessity of the post processing software. List down any four post processing software and list features of any one post processing software. [05]

b) List down the generalized procedure to carry out survey of a small campus using a total station. [05]

Q.3 a) State the role played by SBPS receiver in SBPS surveying. List down types of SBPS receivers and state features of a surveying SBPS receiver. [05]

b) Discuss in brief any five kinds of errors in positioning with SBPS. [05]

OR

a) What is mean by SBPS positioning. List down methods of SBPS positioning and explain with sketch any one of it. [05]

b) Enlist applications of SBPS in field of land and hydrographic surveying. [05]

P.T.O.

- Q.4** a) Describe the use of sounding poles and sounding chain for measurement of soundings. [05]
- b) Explain the method of intersecting ranges for locating sounding. Also state the condition under which this method is suitable [05]

OR

- a) State objectives of Hydrographic survey and explain procedure of shore line survey. [05]
- b) Explain any one graphical method of solution of three point problem in Hydrographic survey. [05]

- Q.5** a) Define the following terms: [05]
- i) Vertical photograph
 - ii) Principle point
 - iii) Relief displacement
 - iv) Air base distance
 - v) Mosaic

- b) A line AB measures 10cm on a photograph taken with an aerial camera having a focal length of 15 cm. the same line measures 5 cm on a map drawn to a scale of 1:20000. Calculate the flying height of the aircraft if the average altitude of the ground is 350 m. [05]

OR

- a) Define parallax of a point in photogrammetry. Describe the procedure of measuring parallax difference using a parallax bar. [05]
- b) Determine number of photographs required to cover an area measuring 15km X 10km for the following: [05]
- i) Scale of photograph 1: 20000
 - ii) Longitudinal overlap 60%
 - iii) Side lap 30%
 - iv) size of photograph 23 cm X 23cm

- Q.6** a) Define visual interpretation of Remote Sensing images, list down elements of visual interpretation and bring out concept selection key and elimination key in visual interpretation. [05]
- b) Define GIS, list down components of GIS and describe in brief software as one of the component of GIS. [05]

OR

- a) List down and explain different types of remote sensing data products with reference to number of spectral bands used in imaging. [05]
- b) Enumerate the function of a GIS and explain in brief query as one of the function of a GIS. [05]

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