BACHELOR OF TECHNOLOGY (C.B.C.S.) (2020 COURSE)

B.Tech.Sem - V CIVIL : WINTER- 2022

SUBJECT : ITC-III: ADVANCED SURVEYING WITH GEOMATICS

Day : Friday | Time : 02:30 PM-05:30 PM

Date : 16-12-2022 | W-24383-2022 | Max. Marks : 60

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat labelled diagrams **WHEREVER** necessary.

Q.1 **a)** What is triangulation? Explain with neat sketches different triangulation figures. **(04)**

b) Following angles were measures at a station and observation equations are as follows: **(06)**

$< A = 41^0\ 34'\ 18''$ $wt.1$

$< B = 39^0\ 24'\ 10''$ $wt.2$

$< A + < B = 80^0\ 58'\ 32''$ $wt.2$

find most probable values of angles A and B.

OR

Q.1 **a)** Define the following terms: **(04)**
i) Direct observation. ii) Weight of an observation
iii) True value of a quantity iv) Most probable value

b) Determine the most probable values of the angles of a triangle ABC by using method of normal equations. **(06)**

$< A = 59^0\ 24'\ 30''$ $wt.1$

$< B = 51^0\ 12'\ 42''$ $wt.2$

$< C = 69^0\ 22'\ 38''$ $wt.2$

Q.2 **a)** State the salient features of Electronic total station. **(05)**

b) Explain various types of errors in total station survey. **(05)**

OR

Q.2 **a)** Explain with neat sketches following on board programs in total station. **(05)**
i) REM ii) RDM iii) Free station

b) Explain types of total station according to types of EDM and range. **(05)**

Q.3 **a)** Explain active and passive systems of remote sensing. **(05)**

b) What is meant by spatial and spectral resolution in remote sensing? Explain. **(05)**

OR

Q.3 **a)** Explain the terms: **(05)**
i) Spectral signature ii) Atmospheric windows

b) State any five applications of remote sensing. **(05)**

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Q.4 a) What are the various sources from which data can be derived to be used in GIS? (05)

b) Describe the vector data structure in GIS? State its advantages over raster data structure. (05)

OR

Q.4 a) Explain with examples of spatial and non-spatial data used in GIS. (05)

b) State relative merits and demerits of raster and vector data structure. (05)

Q.5 a) Describe the space and control segments of SBPS. (05)

b) What is meant by different SBPS? Explain its working. (05)

OR

Q.5 a) Explain various types of SBPS receivers. (05)

b) State applications of SBPS. (05)

Q.6 a) What is meant by relief displacement in photogrammetry? Derive an equation for relief displacement with a neat sketch. (05)

b) An area of 52 km × 30 km is to be surveyed using arrival survey no. of the photographs required to over the area, Flying height and time interval between the exposures. (05)
Size of photo = 23cm ×23 cm,
Average photo scale = 1:20, 000
Longitudinal overlap = 60%
Side lap = 30%
Speed of the air craft = 260 km/ hr.
Focal length of the camera lens = 15 cm

OR

Q.6 a) Define following terms: (05)
i) Vertical photograph
ii) Principle point
iii) Parallax of a point
iv) Relief displacement
v) Flying height

b) An aircraft was flying 2400 m above the cliff. The difference in parallax between top and bottom of the cliff was 0.70mm. Determine the height of the cliff, if the photo base distance was 70 mm. (05)

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