Sub Code:KCE302

Paper Id: 100327 Roll No:

B.TECH
(SEM-III) THEORY EXAMINATION 2019-20
SURVEYING & GEOMATICS

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

Qno.	Question	Marks	CO
a.	Define Surveying and list its principles.	2	1
b.	Differentiate between WCB and QB system of bearings.	2	1
c.	Calculate the true bearing of a line for which magnetic bearing is 46°34' and declination is 5°38' East.	2	1
d.	What do you understand by term degree of a curve?	2	2
e.	Differentiate between Almanac &Ephimeris data.	2	3
f.	How many minimum numbers of satellites are required to obtain a position of a point on earth?	2	3
g.	What do you understand by the term Photogrammetry?	2	4
h.	Differentiate between principal point & nadir point.	2	4
i.	What do you understand by image classification?	2	5
j.	Differentiate between active and passive sensor.	2	5

SECTION B

2. Attempt any *three* of the following: 10x3=30

Qno.	Question	Marks	CO
a.	The following bearings were observed while traversing with a compass **LINE** / **F.B.** / **B.B.** PQ / 45°45' / 226°10' QR / 96°55' / 277°5' RS / 29°45' / 201°10' ST / 324°48' / 144°48' Determine the corrected bearings.	10	1
b.	Define the term vertical curve and explain its various types with help of neat sketch.	10	2
c.	What are object and field based models? Differentiate between vector and raster data formats.	10	3
d.	Describe the function of different parts of an aerial camera with the help of a neat sketch. Also differentiate between angle of tilt and angle of swing.	10	4
e.	What is an idealized remote sensing system? Discuss the role of EM energy involved in it.	10	5

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SECTION C

3. Attempt any *one* part of the following: 10x1=10

Qno.	Question	Marks	CO
a.	Describe the process of contouring and state the characteristics and methods of locating the contours.	10	1
b.	The top (B) of a tower was sighted from two stations A and C at different levels, the station A and B being in line with top of tower. The angle of elevation from A to the top of tower is 48°31 and that from C to the top of tower was 31°28 The angle of elevation from C to a vane 2 m above the foot of staff held at A was 25°21. The heights of the instrument at A and C were 2.87 m and 2.64 m respectively. The horizontal distance between A and C was 137m and the reduced level of C was 122.78m. Calculate the R.L. of the top of the tower and the horizontal distance from A to the tower.	10	1

4. Attempt any *one* part of the following: 10x1=10

Qno.	Question	Marks	CO
a.	Enlist various linear methods of setting out simple circular curve and describe any one of them in detail.	10	2
b.	Explain the necessity of transition curve and derive the intrinsic equation for ideal transition curve.	10	2

5. Attempt any *one* part of the following: 10x1=10

Qno.	Question	Marks	CO
a.	Describe the different methods of measuring distance & state the various types of EDM instruments.	10	3
b.	What is a GPS? Explain the different sources of errors in GPS.	10	3

6. Attempt any *one* part of the following: 10x1=10

Qno.	Question	Marks	CO
a.	Derive an expression to obtain scale of a vertical photograph. A vertical photograph was taken at an altitude of 1000 m above MSL. Determine the scale of photograph for terrain lying at an elevations of 100 m if the focal length of the lens is 20 cm.	10	4
b.	Derive parallax equations for determining elevation and ground coordinates of a point.	10	4

7. Attempt any *one* part of the following: 10x1=10

Qno.	Question	Marks	CO
a.	Explain different spectral classes. Discuss the process of supervised and unsupervised classification.	10	5
b.	Explain the process of image enhancement? Describe linear & non linear contrast enhancement process.	10	5