PAPER ID-311216

Subject Code: KCE302

Roll No: | | | | | | | | | | | | | |

B TECH
(SEM-III) THEORY EXAMINATION 2020-21
SURVEYING AND 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**

Q no.	Question	Marks
a.	What do you mean by "closing error"?	2
b.	Define the term benchmark.	2
c.	List the different principal source of errors in levelling.	2
d.	Calculate the true bearing of a line for which magnetic bearing is 46°34' and declination is 5°38' East.	2
e.	Define the term Vertical photograph and Tilted photograph.	2
f.	Define photogrammetry.	2
g.	What are the various sources of error in GIS?	2
h.	Define crab and drift.	2
i.	How is the horizontal angle measurement made with the help of Total Station?	2
j.	What is the importance of parallax measurement?	2

SECTION B

2. Attempt any *three* of the following:

Q no.	Question	Marks
a.	Explain in detail the different classifications of survey. Also, Describe the function of different types of instruments used for chaining.	10
b.	The following consecutive reading were taken with a level and 5-meter levelling staff on continuously sloping ground at a common interval of 20 meters: 0.385; 1.030; 1.925; 2.825; 3.730; 4.686; 0.625; 2.005; 3.110; 4.485. The reduced level of the first point was 208.125 meter. Rule out a page of level field book and enter the above readings. Calculate the reduced levels of the points by rise and fall method and also the gradient of the line joining the first and the last point.	
c.	What are the advantages and disadvantages of various remote sensing platforms?	10
d.	What do you understand by spatial data and attribute data? How are they integrated to make a GIS?	10
e.	List the advantage of use of Total Station in Modern Field Survey.	10

SECTION C

3. Attempt any *one* part of the following:

Q no.	Question	Marks
a.	The following staff reading were observed successively with a level, the instrument having been moved after third, sixth and eight readings: 2.228; 1.606; 0.988; 2.090; 2.864; 1.262; 0.602; 1.982; 1.044; 2.684 meters. Tabulate a level field book and calculate the Reduced Level (RL) of points if the first reading was taken with a staff held on a benchmark of 432.384 meter.	10
b.	What do you mean by triangulation? Explain the different classifications of triangulation system.	10

4. Attempt any *one* part of the following:

Q no.	Question	Marks
a.	Drive the equation of setting out a simple curve using Offsets from long chord and Perpendicular offsets from the tangent methods.	10
b.	A circular curve has 200-meter radius and 65° deflection angle. Calculate its degree: i. By arc method, ii. By chord definition. Also, Calculate. iii. Length of curve, iv. Tangent length, v. Length of long chord, vi. Apex distance, vii. Mid-ordinate.	10

5. Attempt any *one* part of the following:

Q no.	Question	Marks
a.	What is a total station? Explain various parts and applications of the Total Station.	10
b.	Define GIS and discuss its key component? Explain the important functions in a GIS?	10

6. Attempt any *one* part of the following:

Q no.	Question	Marks
a.	Derive parallax equations for determining elevation. Also, Explain the construction and working procedure of a parallax bar in brief.	10
b.	Two points P and Q having elevations of 700 meter and 3000 meters respectively above datum, appear on a vertical photograph obtained with a camera of focal length of 250 mm and flying altitude of 2800 meter above datum. Their correlated photographic co-ordinate are as follows: Calculate the length of the ground line PQ.	10

Points	Photographic co-ordinates	
	x	y
P	+4.65 cm	+3.54 cm
Q	- 2.50 cm	+6.59 cm

7. Attempt any *one* part of the following:

Q no.	Question	Marks
a.	Briefly explain the applications of remote sensing in various areas.	10
b.	Label various parts of a Electromagnetic Spectrum with neat diagram.	10