

JK Lakshmipat University Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination, May 2022
B. Tech. (CE), Semester VI, 2021-2022

Roll No.....

CE1102: DIGITAL SURVEYING AND MAPPING

Time: 3 hours

Max. Marks: 60

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Mention all the assumptions for your answers clearly.
3. Marks are indicated against each question.

Q. 1.1 Difference between the following:

(a) Plan and Map

(b) True meridian and Magnetic meridian

3.0
(LO2)

Q. 1.2 The magnetic bearing of a line is $48^{\circ} 24'$. Calculate the true bearing if the magnetic declination is $5^{\circ} 38'$ East.

3.0
(LO3, 4)

Q. 1.3 The following bearings were observed with a compass. Calculate the interior angles:

4.0
(LO3, 4)

Line

AB

BC

CD

DE

EA

Fore Bearing

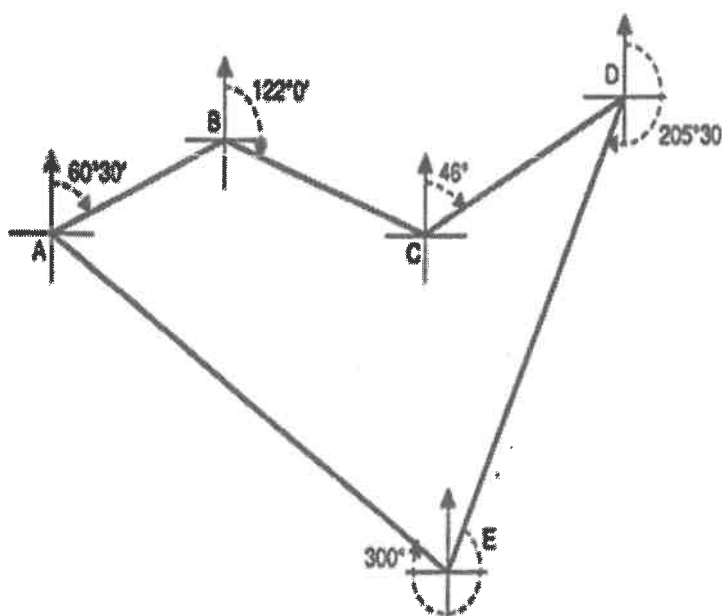
$60^{\circ} 30'$

$122^{\circ} 0'$

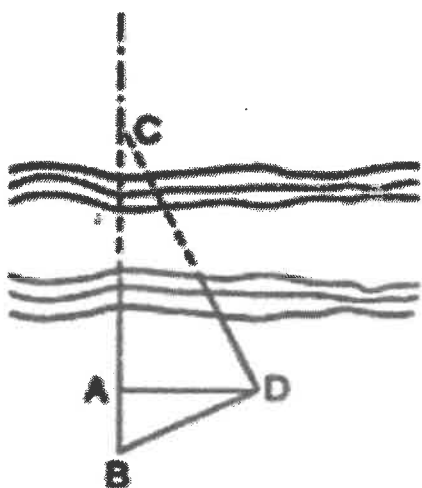
$46^{\circ} 0'$

$205^{\circ} 30'$

$300^{\circ} 0'$



- Q. 2.1 A survey line BAC crosses a river, A and C being on near and distant banks respectively. Standing at D, a point 50 m measured perpendicularly to AB (LO2,3,4) 4.0
from A, the bearings of C and B are 320° and 230° respectively, AB being 25 m. Find the width of river.



- Q. 2.2 Define the scale. Explain the various types of scales used in surveying. 4.0
(LO1,2)

- Q. 2.3 Write an explanatory note on "Fundamental Principles of Plane surveying". 4.0
(LO2)

- Q. 3.1 It was required to ascertain the elevation of two points P and Q and a line of levels was run from P to Q. The levelling was then continued to a B.M. of 83.500, the reading obtained being as shown below: Obtain the R.L. of P and Q. 5.0
(LO3,4)

S.N.	B.S.	I.S.	F.S.	R.L.	Remarks
1	1.622				P
2	1.874		0.354		
3	2.032		1.780		
4		2.362			Q
5	0.984		1.122		
6	1.906		2.824		
7			2.036	83.500	B.M.

Q. 3.2 Explain how contouring indicates the elevations directly? Write about contour interval, characteristics of contour. 3.0
(LO2,4)

Q. 3.3 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 : 5.0
(LO3,4)
0.385; 1.030; 1.925; 2.825; 3.730; 4.685; 0.625; 2.005; 3.110;
4.485.

The reduced level of first point was 208.125 m. Rule out a page of a 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 last point.

Q. 4.1 With a flow diagram, describe the role of GIS in planning purpose. 3.0
(LO2,6)

Q. 4.2 Explain in detail the primary components of GIS in increasing order of importance. 4.0
(LO1,6)

Q. 4.3 Enlist the different advantages and disadvantages of Raster data model. 3.0
(LO2,6)

Q. 5.1 Explain the Global Positioning System (GPS) with the following subheadings: 5.0
(LO1,5,)
(i) Major component of GPS
(ii) Factors affecting GPS accuracy
(iii) Types Geo-positioning

Q. 5.2 Explain the four different types of resolutions for remote sensing system. 3.0
(LO5,6)
Describe each with an example.

Q. 5.3 Enlist the different advantages and disadvantages of Raster data model. 3.0
(LO5, 6)

Q. 5.4 Briefly explain the types of sensors in Remote Sensing system used to measure energy released or reflected from objects on the earth. 4.0
(L5, 6)

all the best!