Registration No.: | | | | | | | | | | |

Total Number of Pages: 02 **Course: B.Tech/IDD**
Sub_Code: CIPC2002

3rd Semester Regular Examination: 2024-25
SUBJECT: Engineering Survey
BRANCH(S): CE, C&EE, CIVIL
Time: 3 Hours
Max Marks: 100
Q.Code: R588

Answer Question No.1 (Part-I) which is compulsory, any eight from Part-II and any two from Part-III.
The figures in the right hand margin indicate marks.

Part-I

Q1 **Answer the following questions:** **(2 x 10)**

a) Explain Geodetic surveying.
b) List principles of chain survey.
c) What is magnetic declination?
d) If the whole circle bearing of a line is 245°, then estimate its quadrantal bearings.
e) Define Mean Sea Level.
f) Given that the upper and lower hair readings in a level are 1.850 and 1.435, respectively. Calculate the distance of the leveling staff from the instrument station.
g) Define departure of a line.
h) List all purposes of theodolite traverse.
i) List key advantages of a digital theodolite over a conventional theodolite?
j) What is remote sensing?

Part-II

Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** **(6 x 8)**

a) Describe a field book and show how field measurements are entered in it.
b) Describe in detail how you would range and chain a line between two points which are not inter-visible because of an intervening hillock.
c) A survey line CDE crosses a river, D being on the near bank and E on the opposite bank. A perpendicular DF = 150 m is ranged at D on the left. From point F bearings of E and C are observed to be 25° and 115° respectively. If the chainage C is 1250 m and that of D is 1620 m, find the chainage of E.
d) Enumerate the sources of errors in compass survey.
e) What is local attraction and how is it eliminated?
f) Draw a neat sketch of dumpy level and describe its different parts.
g) Explain the process of reciprocal leveling and state its advantages.

h) Define contour. State the various characteristics of contour lines

i) What are different errors in theodolite work and how are they eliminated?

j) What are 'face left' and 'face right' observations? Why is it necessary to take both face observations?

k) Write short notes on total stations.

l) Explain the various sources of error and their corrections in positioning with global positioning system survey.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3 **a)** Describe different types of chains commonly used in surveying, stating the special advantages of each. **(10+6)**

b) A 20 m chain was found to be 12 cm too long after chaining a distance of 1600 m. It was found to be 20 cm too long at the end of day's work after chaining a total distance of 2800 m. Determine the correct distance if the chain was correct before the commencement of the work.

Q4 The following bearings were observed with a compass on a close traverse. Calculate the angles and correct the bearings for local attraction if any. **(16)**

Line	FB	BB
AB	191° 30'	13° 00'
BC	69° 30'	246° 30'
CD	32° 15'	210° 30'
DE	262° 45'	80° 45'
EA	230° 15'	53° 00'

Q5 The following consecutive readings were taken with a level: **(16)**
0.875, 1.235, 2.310, 1.385, 2.930, 3.125, 2.110, 0.120, 1.875, 2.000, 3.365, 1.755. The instrument was shifted after 4th, 6th, and 10th reading. The RL of the first point was 100 m. Enter the readings in level book, and reduce the levels for all points using the Height of Instrument method. Apply usual checks.

Q6 A traverse is run to set out a line MQ = 1900 m at right angles to a given line MN. The length and bearings of the traverse legs are observed as follows: **(16)**

Line	Length	Bearings
MN	-	360° 00'
MO	850	120° 00'
OP	1000	86° 30'
PQ	-	-

Compute the length and bearings of PQ.