

Roll No.

Total Pages : 3

019501

December 2023

**B.Tech. (Environmental Engineering) - V SEMESTER
Engineering and Environmental Surveying
(PCC-ENV-501)**

Time : 3 Hours]

[Max. Marks : 75


Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*
4. *Assume any missing data accordingly.*

PART-A

1. (a) What is local attraction? (1.5)
(b) What is the correct length of a line which is measured as 350 m with a 20 m tape, 10 cm too long? (1.5)
(c) Define GPS. (1.5)
(d) What do you understand by contour interval? (1.5)
(e) Define the term datum used in leveling. (1.5)
(f) Explain one key objective of conducting soil and groundwater surveys in an Environmental Impact Assessment. (1.5)

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- (g) Define 'base line' in chain surveying. (1.5)
- (h) Define the term "habitat mapping" in the context of ecological surveys. (1.5)
- (i) What is a planimeter? (1.5)
- (j) Define the term reconnaissance used in surveying. (1.5)

PART-B

- 2. (a) Explain the fundamental principles of surveying. (7)
- (b) A closed compass traverse was conducted round a forest, and the following bearings were observed. Determine which stations suffer from local attraction, and compute the corrected bearings.

Line	Fore Bearing	Back Bearing
AB	74°20'	256°00'
BC	107°20'	286°00'
CD	224°50'	44°50'
DA	306°40'	126°00'

(8)

- 3. Write short notes on any *three* :
 - (a) Plane and geodetic surveying.
 - (b) Total station surveying.
 - (c) GIS.
 - (d) Alignment survey for highways.
 - (e) Foundation marking in surveying. (15)

- 4. Define contour and discuss characteristics of contours giving suitable sketches. (15)

- 5. (a) What is mass-haul diagram? How is it constructed, and what are its uses? (10)
- (b) Define the term Digital Terrain Modelling. (5)
- 6. (a) Define the terms "noise measurement" and "sound propagation." Explain their relevance in EIA, and provide examples of how these factors can impact the environment. (10)
- (b) Explain how profile leveling is conducted for route alignment. (5)
- 7. Explain the importance of ecological surveys in EIA, focusing on biodiversity assessment and habitat mapping. Provide examples of how ecological impact analysis is conducted and its role in decision-making. (15)