Civil Engineering Licensure Exam – Mock Exam (Day 13: Survey Computations and Map Reading)

February 24, 2025

Instructions

- Time Limit: 60 Minutes
- Coverage: Survey Computations and Map Reading
- Total Questions: 10 (Multiple Choice & Problem-Solving)
- Show complete solutions for problem-solving questions.

Section A: Multiple Choice Questions (MCQs)

Choose the best answer.

1. The scale of a map is 1:5000. If a road measures 10 cm on the map, what is the actual ground distance?
   (a) 50 m
   (b) 500 m
   (c) 5000 m
   (d) 5 m
2. A contour line represents:
   (a) Points of equal latitude
   (b) Points of equal elevation

(c) Points of equal longitude

(d) Points of equal distance from a reference point

3. Which type of projection is commonly used in topographic maps?

   (a) Cylindrical

   (b) Conical

   (c) Planar

   (d) Mercator

4. The sum of latitudes in a traverse should ideally be:

   (a) Equal to zero

   (b) Equal to the sum of departures

   (c) Greater than zero

   (d) Less than zero

5. The area of a surveyed field is best determined using:

   (a) Simpson's Rule

   (b) Trapezoidal Rule

   (c) Both (a) and (b)

   (d) None of the above

Section B: Problem-Solving

1. A map has a scale of 1:2000. A road is measured as 15 cm on the map. Find the actual ground distance.

2. A closed traverse has measured latitudes: 250 m, -150 m, 100 m, and -200 m. Compute the latitude misclosure.

3. A land parcel is surveyed, and the measured distances are 50 m, 60 m, 40 m, and 45 m, forming a quadrilateral. Estimate the area using the trapezoidal rule.

4. If a map has a scale of 1:10000 and the contour interval is 5 meters, determine the vertical exaggeration.

5. A surveying team records the following bearing angles for a closed traverse: $45°, 130°, 220°$, and $x°$. Compute the missing bearing angle.