

SEE.

KATHMANDU UNIVERSITY  
End Semester Examination  
March/April, 2025

Marks Scored:

Level : B.E.

Course : CIEG 202

Year : II

Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date : ~~17~~ 17 April 2025

SECTION "A"

[20Q.  $\times$  0.5 = 10 marks]

Choose and **encircle** the most appropriate answer among the given choices

- Which of the following scale for the preparation of map is the lowest one?  
a. 1 cm = 10 km      b. 1:1,00,000      c. R.F. = 1/5000      d. 1cm = 100 m
- Surveys which are carried out to provide a national grid of controls for the preparation of accurate maps of large areas are called  
a. topographical survey      b. plane survey  
c. geodetic survey      d. geographical survey
- Error introduced due to bad ranging while aligning a line is a kind of  
a. negative cumulative error      b. positive cumulative error  
c. compensating error      d. accidental error
- The degree of precision required in survey work mainly depends upon the  
a. nature of field      b. sources of error      c. purpose of survey      d. area to be surveyed
- When a tape is used for measurement of distance along a slope, the correction for slope is given by  
a.  $L(1 - \cos\theta)$       b.  $L(1 + \cos\theta)$       c.  $L(1 + \sin\theta)$       d.  $L(1 - \sec\theta)$
- The least number of ranging rods required for ranging a line in hills is  
a. 7      b. 6      c. 5      d. 4
- A 30 m chain was found to be 10cm too short after chaining 1500 m. The corrected length of the total distance chained will be  
a. 1505 m      b. 1502.50 m      c. 1497.50 m      d. 1475 m
- Auxiliary lines are  
a. the line joining two main survey stations.  
b. the line run in field to check accuracy of work.  
c. provided to avoid too long offsets.  
d. the shortest of the main survey lines.
- The position of point can be fixed more accurately by  
a. oblique offset      b. optical square      c. prism square      d. perpendicular offset



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17 April - 2025

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Semester : I  
F. M. : 40

SECTION "B"

[4Q. × 4 = 16 marks]

*Attempt ANY FOUR questions. Assume suitable data where necessary.*

1. What are the possible sources of the error during the surveying? Explain them with proper examples. [4]
2. State the working mechanism of chain surveying. A chain line XYZ crosses a river, Y and Z being on the near and distant banks of river respectively. Perpendiculars YM and XN 30.5 m and 50.5 m long respectively are drawn such that Z, M and N are in a straight line. If the chainage of X and Y are 605.6 m and 655.6 m respectively, calculate the chainage of Z. [1+3]
3. Differentiate between (*ANY TWO*) [2+2]
  - a. Accuracy and Precision
  - b. Pedometer and Passometer
  - c. Whole Circle Bearing System and Quadrantal Bearing System
4. Write short notes on (*ANY TWO*) [2+2]
  - a. Line Ranger
  - b. Bench mark and its types
  - c. Field procedure to erect perpendicular to a chain line
5. Elaborate the procedure in detail for the measurement of horizontal angle by Repetition method and Reiteration method with necessary sketches. [2+2]

SECTION "C"

[4Q. × 6 = 24 marks]

*Attempt ANY FOUR questions. Assume suitable data where necessary.*

6. Briefly explain the objectives of surveying. List out the stages of surveying operations to be followed while surveying. Why one should follow the principle of working from whole to part during the surveying an area? Explain the reasons with the help of appropriate examples. [2+1+3]
7. List out the various corrections that needs to be applied during the linear measurements. Before starting the day's work, a 30 m chain was tested and found to be 0.040 m too short. After measuring 980 m, the chain was tested again and found to be 0.010 m too long. After measuring another 850 m, the chain was tested at the end of day and found to be 0.035 m too long. Find the true length measured during the day. [2+4]

**P.T.O.**

8. Briefly explain the significances of bearing in surveying with proper examples. Calculate the correct bearings of the following traverse taken from a compass survey. [2+4]

Line	F.B	B.B
AB	111°30'	293°30'
BC	204°00'	24°00'
CD	257°00'	75°30'
DE	296°00'	116°30'
EA	55°00'	234°00'

9. Define reciprocal leveling. The staff readings taken during levelling operations are given as:  
1.355, 1.605, 2.125, 0.685, 1.365, 2.015, 1.355, (-1.385), 0.685, 2.105, 1.685, 1.155, 1.105, 2.015, 1.085, 1.345, 1.355 and (-2.015). The instrument was shifted after 5<sup>th</sup>, 10<sup>th</sup> and 14<sup>th</sup> readings. Arrange the data in tabular form and find the reduced levels of all the points, if the 5<sup>th</sup> reading was taken on a benchmark of R.L of 285.635m. Apply necessary checks. [1+5]
10. Define plane table surveying and state its working principle. Explain, with neat sketches, any two common methods of plane table surveying. [2+4]