

KATHMANDU UNIVERSITY
End Semester Examination [C]
December, 2024

Marks Scored:

Level : B.Arch.

Year : II

Exam Roll No. :

Time: 30 mins.

Registration No.:

Course : CIEG 232

Semester : I

F. M. : 10

Date : 22 DEC 2024

SECTION "A"

[20Q. \times 0.5 = 10 marks]

Choose and encircle the most appropriate option from each set of choices

- Which of the scale is the largest one?
a. 1 cm = 50 m b. 1:42000 c. RF=1/300000 d. d. 1 cm=50 km
- The Quadrantal bearing of a line is N60°W. The Whole Circle bearing is
a. 60° b. 150° c. 300° d. 30°
- The triangle is said to be well condition triangle if the angles are
a. Less than 120° and greater than 30° b. Greater than 120° and less than 45°
c. Less than 60° and greater than 30° d. Greater than 120° and less than 30°
- A river is an obstacle to
a. Both chaining and ranging b. ranging but not to chaining
c. neither ranging nor chaining d. Chaining not to ranging
- The fore bearing of the line AB is 209°. The included angle ABC is 341°. The fore bearing of the line BC is
a. 10° b. 330° c. 550° d. 90°
- If N is the number of sides of a traverse, while traversing clockwise the sum of the included angles should be
a. (2n-4) x 90 b. (2n+4) x 90 c. (2n-3) x 90 d. 360°
- To calculate the amount of cut and fill
a. Only profile levelling is sufficient
b. Only cross sectioning is sufficient
c. Barometric levelling is required
d. Both profile and cross section levelling is required
- Systematics error are those errors
a. Which cannot be recognize
b. Whose character is not understood
c. Whose effect are cumulative and can be eliminated by adopting suitable methods
d. Which changes rapidly
- The combined correction due to curvature and refraction is given by _____
a. 0.06728d³m b. 0.06728d⁴ m c. 0.06728dm d. 0.06728d² m

10. The annual variation of the magnetic declination at a place is caused because of the rotation of
 a. Moon about earth
 b. earth about its own axis
 c. Earth about sun
 d. moon about sun
11. Centering of the Instrument is not required in _____
 a. Compass Surveying
 b. Plane Table Surveying
 c. Level Survey
 d. Theodolite Survey
12. The difference between the Fore Bearing and Back Bearing for any traverse line is _____
 a. 0°
 b. 150°
 c. 180°
 d. 100°
13. What is the commonly used length of a telescopic staff?
 a. 6 m
 b. 5 m
 c. 4m
 d. 3 m
14. The length of the Gunter's chain is _____
 a. 20 ft
 b. 66 ft
 c. 66 m
 d. 100 m
15. The meridian taken with reference to magnetic north direction for measuring bearings of survey lines, is known as _____
 a. Arbitrary meridian
 b. True Meridian
 c. Magnetic Meridian
 d. Grid Meridian.
16. Geodetic survey is done for area _____
 a. Greater than 260 sq.km
 b. Less than 260 sq. km
 c. Greater than 100 sq. km
 d. Less than 100 sq. km
17. The process of turning the telescope in vertical plane through 180° about its horizontal axis is _____
 a. Transiting
 b. Face left Observation
 c. Swinging
 d. Face Right Observation
18. The area of the plot was measured with a 30 m chain and found to be 5000 sq.m. It was afterward detected that the chain was 10cm too short. The true area of the field is _____
 a. 4025.52 sq. m
 b. 4821.526 sq. m
 c. 5021.265 sq. m
 d. 4966.72 sq. m
19. 1 Ropani equals _____
 a. 20 Anna
 b. 13 Anna
 c. 16 Anna
 d. 4 Anna
20. Accurate centering in plane table surveying is necessary for
 a. Small scale maps
 b. large scale maps
 c. Filling in details
 d. to solve triangles of error rapidly

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F. M. : 40

SECTION "B"

[4Q. × 4 = 16 marks]

Attempt *ANY FOUR* Questions. Assume any necessary data if necessary.

1. Define Surveying. Explain the Principal of Surveying in details. [4]
2. Explain various instruments used in plane table Surveying with necessary figures. [4]
3. Explain the process of Reciprocal Ranging with Proper sketch. [4]
4. A chain line ABC crosses a river at right angle cuts its banks at B & C. Determine the width BC of the river, The following operation was carried out. A point E was established on the perpendicular BE such that angle CEF is right angle where F is a point on the survey line. If the chainage of F & B are respectively 1200m & 1320m and the distance EB is 90m, calculate the width of river & also the chainage of C. [4]
5. Write the difference between Whole circle Bearing and Reduced Bearing in Details. [4]

SECTION "C"

[4Q. × 6 = 24 marks]

Attempt *ANY FOUR* Questions. Assume any necessary data if necessary.

6. The following successive reading were taken with a dumpy level along chain line at a common interval of 20m. The first reading was taken on a chainage 140m. The RL of the second change point was 107.215m. The instrument was shifted after the third and seventh reading. Calculate the RL of all points. Use rise and fall method [6]
3.150, 2.245, 1.125, 3.860, 2.125, 0.760, 2.235, 0.470, 1.935, 3.225, 3.890.
7. Write Short notes on: (*ANY TWO*) [3+3]
 - a. Temporary Adjustment of Theodolite
 - b. Accuracy and Precision
 - c. Principle of Chain Survey
8. A line was measured with a steel rape which was exactly 30 m at 20°C and a pull of 50 N and the measured length was 859.242 m. Temperature during measurement was 30°C and the pull applied was 100 N. The tape was uniformly supported during the measurement. Find the true length of the line if the cross-sectional area of the tape was 0.02 cm², the coefficient of expansion per °C = 0.0000117 and the modulus of elasticity = 21 × 10⁶ N per cm². [6]

P.T.O.

9. The following bearings were taken in running the compass traverse.

Line	F. B	B. B
AB	$124^{\circ} 30'$	$304^{\circ} 30'$
BC	$68^{\circ} 15'$	$246^{\circ} 0'$
CD	$310^{\circ} 30'$	$135^{\circ} 15'$
DA	$200^{\circ} 15'$	$17^{\circ} 45'$

Compute the interior angle and correct them for observational errors. Assuming the observed bearing of the line AB to be correct, adjust the bearing of the remaining sides.

[6]