

KATHMANDU UNIVERSITY
End Semester Examination
January/February 2024

Marks Scored:

Level : B.Arch.
Year : II

01 FEB 2024

Course : CIEG 242
Semester : II

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date :

SECTION "A"

[20Q. × 0.5 = 10 marks]

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

- Contour lines of different elevation can unite to form one line in case of _____
a. Valley b. Steep Slope c. Plain Ground d. Vertical Cliff
- Which shaped line indicate the presence of a ridge?
a. U-Shaped b. V-Shaped c. Y- Shaped d. L Shaped
- Contour lines close together indicate _____ slope.
a. Gentle b. Steep c. Uniform d. Undulated
- Contour lines cross a watershed or ridge line at _____
a. 90° b. 60° c. 30° d. 45°
- The constant _____ distance on a map between any two consecutive contours is called contour interval.
a. Inclined b. Horizontal c. Vertical d. Slope
- What is the process of spacing the contours proportional between the plotted ground points established by indirect methods?
a. Interpolation b. Tacheometric Method
c. Cross section Method d. Square Method
- Accuracy of tacheometric distance is low as compared to direct chaining on _____
a. Steep Land b. Hill c. Plain Ground d. Valley
- Bench mark is the point with known _____
a. Easting b. Elevation
c. Northing d. Easting, Northing and Elevation
- The staff intercepts measured at Point A and B was found to be 0.45m and 0.6m respectively. If the point A is at distance of 45 m from instrument station., the distance between point A and B is _____
a. 25 m b. 20 m c. 10 m d. 15 m
- The branch of surveying in which both horizontal and vertical distances between stations are determined by making instrumental observations is known as _____
a. Contouring b. Bearing c. Tacheometry d. Traversing

11. The stadia interval was found to be 1.4m when the tacheometer was sighted to station A with staff vertical. The measured vertical angle was $-6^{\circ}40'$. The horizontal distance between instrument station and A is _____
 a. 182 m b. 138 m c. 128 m d. 150 m
12. In a tacheometer, the number of horizontal cross wires in the stadia diaphragm is _____
 a. 1 b. 2 c. 3 d. 4
13. In a fault free theodolite, the line of the sight and the axis of the telescope are _____
 a. Perpendicular to each other b. Inclined at angle of 45°
 c. Always Parallel to each other d. Inclined at 60° to each other
14. The staff intercept is kept constant in _____
 a. fixed hair with staff vertical b. fixed hair with staff normal
 c. tangential method d. movable hair method
15. The value of multiplying constant and additive constant for perfect theodolite is _____
 a. 0 and 100 b. 101 and 0.1 c. 100 and 0 d. 100 and 1
16. The intercept of staff _____
 a. is maximum, if the staff is held truly normal to line of sight.
 b. is minimum, if the staff is held truly normal to the line of sight.
 c. decrease, if the staff is titled away from normal.
 d. decreases, if the staff is tilted towards normal
17. If the focal length of the objective glass is 20 cm and distance from object glass to the trunnion axis is 12 cm, the additive constant is _____
 a. 0.80 m b. 0.40 m c. 0.20 m d. 0.32 m
18. Which unit in total station processes data collected?
 a. Data collector b. EDM c. Storage system d. Microprocessor
19. Pegs or stakes are not generally fixed at the exact corners of the buildings because _____
 a. it is difficult to set them there b. they might be lost during the excavation
 c. they are not required at corners d. they are made of wood and may rot
20. Setting out is done _____
 a. prior to the preparation of plans b. along with the preparation of plans
 c. after the preparation of plans d. if obstructions are present

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Level : B.Arch.
Year : II
Time : 2 hrs. 30 mins.

Course : CIEG 242
Semester : II
F.M. : 40

01 FEB 2024

SECTION "B"
[4 Q × 4 = 16 marks]

Attempt *ALL* questions. Assume suitable data if necessary.

1. What is contour? Explain the characteristics of contour with necessary diagram. [1+3]
2. Define tacheometry. How can we determine the tacheometric constants of theodolite in field? Explain with necessary diagram. [1+3]
3. Explain the field procedure of surveying using total station. [4]
4. Describe in details the methods of setting out of the building with necessary diagram. [4]

SECTION "B"
[4 Q × 6 = 24 marks]

Attempt *ALL* questions. Assume suitable data if necessary.

5. List the application of contour map. Explain the various method of contour interpolation with necessary sketch? [2+4]
6. Write Short notes on: [3+3]
 - a. Tangential method of tacheometric measurement
 - b. Application of Total Station
7. Explain the principle of tacheometry. Derive the distance and elevation formula if the line of sight is inclined and staff is vertical [2+4]
8. Determine the gradient from P to Q from the following observation made with a tachometer fitted with an anallactic lens. The constant of the instrument were 100 and 0 and the staff was held vertically. [6]

Instrument station	Staff Station	Bearing	Vertical Angle	Staff Readings
R	P	130°	+10°32'	1.255, 1.810, 2.365
	Q	220°	+5°06'	1.300, 2.120, 2.940

