

KATHMANDU UNIVERSITY
End Semester Examination
July/August, 2024

Marks Scored:

Level : B.E.

Year : III

Exam Roll No. :

Time: 30 mins.

Registration No.:

Course : GEOM 303

Semester : I

F. M. : 10

Date : 10 AUG

SECTION "A"

[20 Q. \times 0.5 = 10 marks]

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

1. 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
2. Invert is defined as
 - a. the R.L. of the inverted pipeline
 - b. the R.L. of the top of the sewer
 - c. the R.L. of the bottom of the inner surface of sewer or pipe
 - d. the R.L. determined with staff inverted
3. What is the volume of a 6 m deep tank having rectangular shaped top 6 m x 4m and bottom 4 m x 2 m (computed through the use of prismoidal formula?)
 - a. 96 cubic metre
 - b. 94 cubic metre
 - c. 92 cubic metre
 - d. 90 cubic metre
4. The radius of a simple circular curve is 30 m and the length of the specified chord is 30 m. The degree of the curve is
 - a. 57.29
 - b. 60
 - c. 55.60
 - d. 37.03
5. For setting out a simple curve using two theodolites
 - a. offsets from tangents are required
 - b. offsets from chords produced are required
 - c. deflection angles from Rankine's formula are required
 - d. Full chord distance is required
6. The length of boning rod for a section of the sewer is
 - a. kept constant
 - b. Changed frequently
 - c. Changed at the alternate intermediate sections
 - d. changed at every section
7. Simpson's rule for calculating area is applicable only when the ordinates are
 - a. odd
 - b. Even
 - c. Composite
 - d. Applicable in any cases
8. The distance between intersecting point and mid - point of simple circular point is
 - a. Apex distance
 - b. Ordinate distance
 - c. Chainage
 - d. Tangent length
9. Gyro- theodolite gives
 - a. Magnetic bearing
 - b. True bearing
 - c. Arbitrary bearing
 - d. Grid bearing

10. The unit of sounding is
a. m/s b. Cycle/s c. Fathom d. Kg/s

Fill in the blanks with appropriate answer.

11. Spring tides occurs during _____
12. Elevation of outer edge of road is raised above the inner one is called _____
13. _____ (instrument) is used for measuring the area of irregular boundary.
14. The minimum distance between two vehicles moving along a curve when the driver of one vehicle can just see the other vehicle on the road is _____
15. Principle of tacheometric survey is based on _____
16. The connection between the channel and the penstock is _____
17. On the basis of installed capacity, capacity greater than _____ MW is large hydropower.
18. Offsets from the tangents to the curve are proportional to the _____ of their distances from the first tangent point.
19. According to the assumption of vertical curve, the length of the vertical curve is _____ to the length of the long chord.
20. Generally, tacheometer's telescope is provided with _____ lens.

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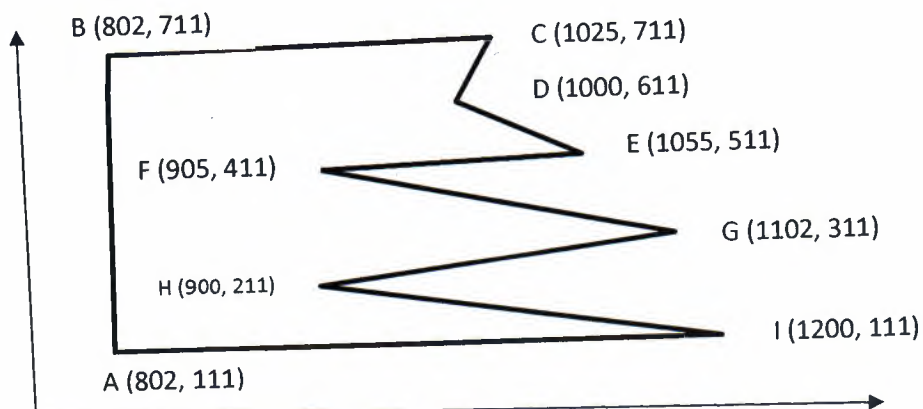
0 1 AUG 2024

Course : GEOM 303
Semester : I
F. M. : 40

SECTION "B"
[40 marks]

Attempt ALL questions. Assume the suitable value if necessary.

1. Clarify the concept of Engineering and construction survey reflecting the importance of geomatics engineer on route surveying. [3]
2. Explain the term 'sounding' in hydrographic survey with equipment required for it. [3]
3. Suppose you are working in a hydropower; elaborate the stepwise task you need to complete as a geomatics engineer. [4]
4. List out the methods to set out a simple circular curve. The center-line of two straights is projected forward to meet at I, the deflection angle being 30° . If the straights are to be connected by a circular curve of radius 200 m, tabulate all the setting-out data, assuming 20-m chords on a through chainage basis, the chainage of I being 2259.59 m. [2+5]
5. List out the assumptions on a vertical curve. A 3% rising gradient meets a 2% down gradient. A vertical curve 200 m long is to be used. The pegs are to be fixed at 20 m interval. Calculate the elevation of the curve points by tangent corrections and calculate the staff readings required, given that the height of collimation is 350.0, R.L. of the apex is 350.0 m and its chainage is 1000.00 m. [2+6]
6. Describe the procedure to be followed for setting out the culvert with well labeled figure. [5]
7. How can we compute tacheometric constant for any tacheometer. List out the points to be considered while carrying out tacheometric survey. [3+2]
8. compute the area of the given figure using
a. coordinate method and
b. trapezoidal rule [2.5+2.5]



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