

KATHMANDU UNIVERSITY
End Semester Examination
June/July, 2023

Marks Scored:

Level : B.E.
Year : II

Course : GEOM 201
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date :

26 JUN 2023

SECTION "A"
[20Q. × 0.5 = 10 marks]

Encircle the most appropriate answer.

1. Plumb lines are taken as parallel to each other in a surveying called.....
 - a. Plane surveying
 - b. Geodetic surveying
 - c. Astronomical surveying
 - d. Gravity surveying
2. Which of the survey is carried out to prepare maps of antiquities?
 - a. Topographical survey
 - b. Mine survey
 - c. Geological survey
 - d. Archeological survey
3. If least square adjustment is applied to 4th order coordinate calculation of control survey, then it would be the against of principle of surveying.
 - a. Working from whole to the part
 - b. Consistency in work
 - c. Economy of accuracy
 - d. Independent check
4. Which statement is **TRUE**?
 - a. Random line method is used in area calculation
 - b. Higher precision implies higher accuracy
 - c. Higher precision implies lower accuracy
 - d. Stepping is always done in downhill approach
5. The tension which neutralizes the sag correction and pull correction is.....
 - a. Combine effect of sag and pull correction
 - b. Normal tension subtracted from sag correction
 - c. Sag correction is subtracted from pull correction
 - d. Normal tension equalizes the pull and sag correction
6. 6080 feet is equivalent to.....
 - a. 1 mile
 - b. 8 mile
 - c. 1 nautical mile
 - d. 1 chain
7. Which instrument is used to set out an angle of 45°?
 - a. Cross staff
 - b. French staff
 - c. Prism square
 - d. Offset rod
8. Which field book is used in large scale chain survey?
 - a. Double line book
 - b. Single line book
 - c. Gal's table
 - d. Plane note book
9. Which compass has broad needle having 0° at S and 180° at N?
 - a. Prismatic compass
 - b. Brunton compass
 - c. Surveyor's compass
 - d. Trough compass
10. Line joining the points having same angle dip is called
 - a. Contour
 - b. Isodip
 - c. Isoclinic
 - d. Isochore

11. Calculate the azimuth of a line if its true bearing is $275^{\circ} 00'$.
 a. 95° b. 85° c. 25° d. 180°
12. Which statement is **INCORRECT**?
 a. The size of theodolite is defined by the length of telescope.
 b. Horizontal axis is perpendicular to line of sight.
 c. Trunnion axis is parallel to axis of level tube
 d. Horizontal axis is mutually perpendicular to vertical axis
13. The rotation of telescope of theodolite by 180° in a vertical plane is termed as.....
 a. Swing b. Transiting c. Revolution d. Forwarding
14. Face right condition is the condition of
 a. Bubble up b. Bubble down
 c. Vertical circle is at left d. Telescope normal
15. In a closed link traverse, angular check should be.....
 a. The value of $(2n - 4)$ Rt. angle = sum of interior angles.
 b. The bearing of last leg = computed bearing of the last leg
 c. $\sum \Delta E = \sum \Delta N$
 d. $\sum \Delta E = 0, \sum \Delta N = 0$
16. In which level, the eye piece and objective can be exchanged?
 a. Auto level b. Tilting level c. Cook's level d. Causing level
17. Height of instrument refer to
 a. Reduced level of instrument point
 b. Height from MSL to line of collimation
 c. Height from ground surface to line of collimation
 d. Height from top of tripod to line of collimation
18. The relation between curvature correction and refraction correction is
 a. Curvature correction = $-1/7$ th of refraction correction
 b. Refraction correction = $-1/7$ th of curvature correction
 c. Refraction correction = $0.0112 * \text{curvature correction}$
 d. Refraction correction = $-0.0785 d^2$, d in kilometer
19. If the two contours having same value run in opposite direction rather, they join together represents
 a. Valley b. Ridge line c. Stream d. Overhanging cliff
20. Where is the Simpson's rule applying to calculate the area of irregular boundary and base line?
 a. If there is odd number of segments
 b. If Irregular boundary is taken as parabolic
 c. If Irregular boundary is taken as rectangle
 d. If there are zero ordinates at ends

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Time : 2 hrs. 30 mins.

Course : GEOM 201
Semester : I
F. M. : 40

SECTION "B"
[6Q. × 4 = 24 marks]

Attempt *ALL* questions.

1. Critically differentiate between Surveying and Geomatics. Explain about the geodetic surveying. [1+3]
2. What is distance meter? Explain the method of measuring distance by subtense bar. [1+3]
3. Define magnetic declination. Describe the variation of declination. [2+2]
4. Write about the temporary adjustment of theodolite.
5. Explain the methods of representation height in levelling.
6. The area enclosed by a closed traverse the following data is obtained. Calculate the area by Coordinate and Double Meridian Distance Method.

<i>Side</i>	<i>Latitude</i>		<i>Departure</i>	
	<i>N</i>	<i>S</i>	<i>E</i>	<i>W</i>
<i>AB</i>	150.8	–	200.5	–
<i>BC</i>	–	250.5	155.6	–
<i>CD</i>	–	120.5	–	200.8
<i>DA</i>	220.5	–	–	150.3

SECTION "C"
[2Q. × 8 = 16 marks]

Attempt *ALL* questions.

7. a. What are the principle of Surveying and Geomatics? [4]
b. Compute the volume of the earth work in a road embankment 100 meters long from following given data: The formation width 6 meters; side slope of banking 2 to 1 Transverse slope of the ground 5 to 1; the mean height of the embankment 2 meters. [4]
8. a. Write about the sag correction. [3]
b. What is propagation of error? How is error propagated in different way of computation? [5]