KATHMANDU UNIVERSITY
End Semester Examination [C]
May/June, 2019

Marks Scored:

Level : B.E.
Year : II

Course : GEOM 205
Semester : I

Exam Roll No. :

Time : 30 mins.

F. M. : 10

Registration No.:

Date 02 JUN 2019

SECTION "A"
[20 Q. × 0.5 = 10 marks]

Encircle the best alternatives among the given choices:

1. Which of the following statement is **incorrect**?
   a. Rock drawing is one of the methods of relief representation.
   b. Direction of the steepest slope on a contour map is along the normal to the contour line.
   c. A contour line is the intersection of a level surface with the surface of the earth.
   d. Surface slope of a map cannot be indicated by short lines of various widths, known as hachures.

2. There are altogether .....topographic map sheets in Nepal, prepared by FINNIDA project:
   a. 81 b. 509 c. 625 d. 706

3. Lines on a map which are at equal vertical distances are known as:
   a. Gradients b. Contour
   c. Horizontal equivalent d. Contour Gradients

4. In contour map, horizontal equivalent is:
   a. small in flat ground b. higher in steep ground
   c. uniform in undulated ground d. non-uniform in undulated ground

5. Operation of turning the Plane Table so that all the lines on the paper are parallel to the corresponding lines on the ground is called:
   a. levelling b. centering c. setting d. orientation

6. Which of the below is not an advantage of Plane Table survey?
   a. Used for accurate works b. less costly
   c. Office work not required d. Minimum computations requirement

7. Plumbing fork is used in Plane Table surveying for:
   a. levelling b. centering c. orientation d. sighting

8. While performing a tacheometric surveying, the telescope of the tacheometer was inclined upwards. The staff intercepts were read but unfortunately, vertical angle could not be read due to some technical constraints. Which of the following, between instrument station and staff station could still be attained?
   a. Slope distance b. Horizontal distance
   c. Vertical intercept d. Reduced level

9. Which of the followings is true?
   a. intersection is taking case, resection is throwing case
   b. intersection is throwing case, resection is taking case
   c. both intersection and resection are throwing cases
   d. both intersection and resection are taking case

10. Which of the below is not a resection method?
   a. Back sighting
   b. Solving two-point problem
   c. Solving three-point problem
   d. Solving four-point problem

11. The plotting of small areas which can be commanded from a single station, is usually done on the plane table by the method of
   a. Radiation b. Intersection c. Traversing d. Resection

12. The scale of a map was changed from 1: 6000 to 1: 12000. The change percentage is
   a. 5% b. 250% c. 50% d. 500%

13. Pick out the incorrect statement.
   a. The contour interval depends upon the time available for surveying.
   b. Contours can be drawn underwater.
   c. Usually the contour interval is kept constant, but a variable interval may be used if required.
   d. A ground of contours with higher figures inside indicates a depression.

14. The type of surveying that needs less office work is:
   a. Tacheometry b. Plane table c. Total Station d. Compass

15. In Trapezoidal formula of areas, the line joining the ends of the ordinates is assumed:
   a. straight b. parabolic c. circular d. rectangular

16. You measured an angle in two faces. The observed angles in FL and FR condition were 20°15'00" and 200°16'20" respectively. If there is no sighting and bisection error, the magnitude of collimation error is:
   a. 1'20" b. 2'40" c. 40" d. 20"

17. Carrying out orientation of plane table from distant station, and checking and detailing in area near station is in accordance with which of the following principles of surveying?
   a. location of a point from two known points
   b. working from whole to part
   c. independent check
   d. consistency of work

18. Suppose you are preparing planimetric map by tacheometry. Which of the followings would still require to be observed?
   a. Zenithal angle
   b. middle wire reading
   c. height of instrument
   d. RL of station

19. Which device is used to find the perpendicularity of a line?
   a. Alidade b. Optical Square c. Clinometer d. Planimeter

20. For medium range (5km -25km) distance measurement, which type of wave is used?
   a. Visible wave b. Infrared c. Microwave d. Radio wave

KATHMANDU UNIVERSITY
End Semester Examination [C]
May/June, 2019

02 JUN 2019

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

Course : GEOM 205
Semester : I
F. M. : 40

SECTION "B"
[6Q. × 4 = 24 marks]

Attempt *ANY SIX* questions. Assume suitable data if necessary.

1. What do you mean by "Contour Interval"? What are the factors that govern the selection of contour interval? [4]

2. Compare the different methods of relief representation in terms of advantages and disadvantages. [4]

3. Compare the accuracy obtained in computation of area using Simpson's rule and trapezoidal rule. Using Simpson's rule, calculate the area enclosed by the boundaries of the field, offsets to which have been taken from a chain line at intervals of 25m to the right and left as shown in the table below. [1+3]

Offset Left	Distance	Offset Right
33.6	0	31.9
29.8	25	27.5
55.3	50	48.9
47.2	75	56.6
24.6	100	18.3
21.7	125	25.4
18.1	150	41.6

4. Define map generalization. Why is map generalization scale related and partly subjective? Why is relief considered as a noise in map? [1.5+1.5+1]

5. Describe the functions of Total station. Why is it preferred in surveying these days? [2+2]

6. Describe the advantages and disadvantages of plane table. What is the procedure for the orientation of a plane table? [2+2]

7. What is the purpose of using an anallactic lens? How do you determine the values of tacheometric constants? [2+2]

SECTION "C"

[2 Q. × 8 = 16 Marks]

Attempt *ANY TWO* questions. Assume suitable data if necessary.

8. Describe the detailed procedure of topographical surveying of Dhulikhel area using a suitable method of surveying. Also, mention the specifications of the survey. [6+2]

9.

a. Derive the equation of distance and elevation for staff normal in tacheometry surveying. [4]

b. Determine the gradient from a point A to a point B from the following observations made with a tacheometer fitted with an anallatic lens with instrument constant of 100 and staff held vertically. [4]

Instrument Station	Staff Point	Bearing	Vertical Angle	Staff Reading
P	A	134°	+10°32'	1.36, 1.915, 2.470
	B	224°	+5°6'	1.065, 1.885, 2.705

10. Describe Lehmann's method of resection with the rules to consider and the cases that may arise. [8]