Marks scored:

KATHMANDU UNIVERSITY
End Semester Examination [C]
November, 2018

Level : B. Tech.
Year : II
Course : ENVE 209
Semester: I

Exam Roll No. :
Time: 30 mins
F. M. : 10

Registration No.:
Date NOV 16 2018

SECTION "A"
[20 × 0.5 = 10 marks]

Tick (√) the most appropriate answers. Assume suitable data.

1. The numerical value 0.000047 has ..... significant figures.
   a) six b) five c) three d) two

2. Bowditch rule is applied to .....
   a) an open traverse for graphical adjustment.
   b) a closed traverse for adjustment of closing error.
   c) determine the effect of local attraction.
   d) find out the angle of the slope

3. The true length between two points is .....
   a) same as that obtained from taping.
   b) never known.
   c) same as that obtained from theodolite.
   d) same as that obtained from EDM.

4. One of the following is not necessary accessories of chain surveying:
   a) Field Book b) Ranging Rod c) Compass d) Chain

5. 1.00 sq. ft. is equal to .....
   a) 0.209 sq.m b) 0.092 sq.m c) 0.920 sq.m d) 0.009 sq.m

6. The vertical direction in stepping method of chain surveying is obtained from .....
   a) spirit level b) plumb bob c) ranging rod d) measuring tape

7. The effect of local attraction is observed in .....
   a) theodolite surveying b) leveling
   c) chain surveying d) compass surveying

8. In a map, Scale is given as 1:42000, its unit is .....
   a) m b) cm c) ft d) Unit less

9. The bearing of a line AB is N45^{0}E. Its Whole Circle Bearing is.....^{0}.
   a) 45 b) 90 c) 135 d) 180

10. ..... are the lateral measurements from the base line to fix the positions of the different objects of the work with respect to base line.
    a) Check line b) Offsets c) Main station d) Tie stations

11. Closed contours, with higher value inwards, represent a .....
a) depression b) hills c) plain surface d) valley

12. Contour interval is.....
a) the vertical distance between two consecutive contours.
b) the horizontal distance between two consecutive contours.
c) the vertical distance between two points on same contour.
d) the horizontal distance between two points on same contour.

13. One of the following is not the source of error in survey:
a) Sunny day b) Rainy day
c) Very precise instrument d) Location of bench mark

14. In a map, Scale is given as 1:20000, its unit is _____
a) m b) cm c) ft d) Unit less

15. Hydrographic Survey deals with mapping of .....
a) movement of clouds b) large Water Bodies
c) cultivable land d) road location

16. Contours of different elevation may cross each other only in case of .....
a) vertical Cliff b) overhanging cliff
c) valley d) ridge

17. Plane and geodetic surveying are classification of surveying based on:
a) Methodology
b) Instrument
c) Object of survey
d) Earth's curvature

18. In the quadrantal bearing system, a whole circle bearing $293^0 30'$ can be expressed as:
a) $W23^0 30'N$ b) $S113^o 30'N$ c) $N66^0 30'W$ d) $N23^0 30'W$

19. For a line AB:
a) Fore bearing of AB and back bearing AB differ by 180^0.
b) Fore bearing of AB and back bearing BA differ by 180^0.
c) Fore bearing of AB and back bearing BA differ by 270^0.
d) Fore bearing of AB and back bearing AB differ by 270^0.

20. ..... is a process of surveying in which the portion of the earth being surveyed is considered a plane.
a) Geodetic surveying b) Plane surveying
c) Mine surveying d) Route surveying

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Time : 2 hrs. 30 mins.

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F. M. : 40

SECTION "B"

Assume necessary data. Attempt *ALL* questions.

1. Define chain surveying with their major objectives. Differentiate between accuracy and precision. [2+3]

2. a. The 30 cm Chain was found to be 10 cm too short after chaining 1200m.Calculate the corrected length of total distance chained. [2+1.5+1.5]
   b. A surveyor student walked along a given line that was known to be 200 ft. long in order to determine her average unit pace. She paced the line five times recording 78, 76.5,77,87,76 paces respectively in her field book.
      i. Determine her average pace.
      ii. If the surveyor then counted an average of 123.5 paces while pacing off the line of unknown distance, what is the distance in m?

3. Explain all the sources of errors that can occur in surveying with the ways to minimize the errors. [5]

4. Describe how they are used: [5 × 1 = 5]
   a. ABNEY HAND LEVEL
   b. ALIDADE
   c. CHRONOMETER
   d. CIRCUMFERENTER
   e. RANGING ROD

5. Write briefly about the topographic surveying. A river is flowing from west to east. For determining the width of river two points A and B are selected on southern bank such that the distance AB = 75 m. Point A is westward and the bearing of a tree C on the northern bank are observed to 380 and 3380 respectively from A and B. Calculate the width of the river with diagram? [2+3]

6. Define contour line. What are the importances of contour map for engineers? Explain the characteristics of contour line with suitable sketch. [1+2+2]

7. Write short notes on (*ANY TWO*) [2.5+2.5]
   - Principle of surveying
   - Factors affecting fieldwork
   - GPS

8. A plot of land required for a hospital construction measures 30 cm * 30 cm on village map drawn on a scale 1 cm = 100 m. What is its area in ha.? What will be its area on a toposheet on 1:25000 scale? *(Note: 1 Ha. = 100 m * 100 m)* [5]