KATHMANDU UNIVERSITY
End of Semester Examination
February/March, 2018

Marks Scored:

Level : B. Tech.
Year : II

Course : ENVE 209
Semester: I

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date MAR 2 1 2018

SECTION "A"
[20 Q. × 0.5 = 10 marks]

Tick (√) the most appropriate answers. Assume suitable data if necessary. (20 * 0.5 = 10)

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

2. Hydrographic Survey deals with mapping of
   a) Movement of clouds b) Large Water Bodies
   c) Cultivable land d) Road location

3. Contours of different elevation may cross each other only in case of
   a) Vertical Cliff b) Overhanging cliff c) Valley d) Ridge

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

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

6. 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.

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

8. 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

9. The area of square plot is 6 ana, If 1 ana is 342.25 sq. ft, the perimeter of that land is ....
   a) 50 m b) 56 m c) 60 m d) 74 m

10. Element of a map which shows the relationship between actual distance and length on a map is called .....
    a) grid line b) legend c) scale d) key line

11. Aeroplanes and boat pilots use GPS for .....
    a) mapping b) bearing calculation
    c) navigation d) limit setting in air or water

12. Map that shows the detailed physical features of a particular area is .....
a) topographic maps b) contour maps c) engineering maps d) climate maps

13. Symbols that are used to describe area covering features such as farms and lakes are called .....
a) area symbols b) height symbols c) point symbols d) line symbols

14. Working from whole to parts is .....
a) only convention of surveying. b) methodology of surveying.
c) principle of surveying. d) not always necessary to follow.

15. ..... errors are referred to mistakes or blunders by either the surveyor or his assistants due to carelessness or incompetence.
a) Gross b) Systematic c) Random d) Forced

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

17. The lateral distance of an object measured from a survey line is called
a) tie line b) offsets c) check line d) ranging line

18. The first step in survey is
a) Reconnaissance b) Marking stations c)Running survey line d)Taking offsets

19. Horizontal distance is
a) equal to the slope distance
b) less than the slope distance
c) greater than the slope distance
d) sometimes grater and sometimes less than the slope distance

20. Obstacles in chaining is solved by
a) Destroying the obstacle
b) Shutting down the surveying
c) Shifting the area of the survey to another place
d) Use of geometry

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Time : 2 hrs. 30 mins.

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F. M. : 40

SECTION "B"

Attempt *ALL* questions. Assume necessary data with explanation.

1. Differentiate between accuracy and precision. State and explain the principle and use of following in land surveying. [2+3]
   a. Tape elongated due to temperature
   b. Ranging rod
   c. Plumb Bob
   d. Offsets
   e. Abney level
   f. Compass

2. Define geodetic surveying. Explain the procedure of chain surveying. A 20 m long chain was found to be 4 cm too long after chaining 1400 m. It was 8 cm too long at the end of the days work, after chaining a total distance of 2420 m. If the chain was correct before of the work find the true distance. [1+2+2]

3. Describe the environmental baseline information gathering process with methods of data collection. What are the major principles of surveying? [3+2]

4. Explain the working principle of GPS. Describe the different components of GPS with figure. [2.5+2.5]

5. Write briefly about the topographic surveying. Explain about the different errors in surveying with techniques to minimize the errors? 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? [1+2+2]

6. What is contour line? State two characteristics of counter line. Draw and compare the contour of Valley and Ridge with elevation ranging 800 m to 1200 m with contour interval of 100 m. [1+2+2]

7. Write short notes on (*ANY TWO*) [2.5+2.5]
   - Ariel survey
   - GPS Errors
   - Magnetic compass

8. Draw a plan of typical topography containing buildings, roads, river and forest. Explain how you would use tie lines and check lines to perform chain surveying in that topography you had drawn. [5]

   OR

   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)*