KATHMANDU UNIVERSITY
End Semester Examination
February/March, 2018

Marks Scored:

Level : B.E.
Year : II

Course : CIEG 202
Semester: I

Exam. Roll No.:

Time: 30 mins.

F.M. : 10

Registration No.:

Date MAR 15 2018

SECTION "A"
[20 Q.×0.5=10 marks]

Choose the most appropriate answer among the given choices

1. Angular error of closure for a four sided traverse created during surveying with surveyor's compass of capacity of measuring bearings to limit of one degree should be within the limit of
   a) ± 1° b) ± 2° c) ± 3° d) ± 4°

2. The back bearing of a line with bearing of N 20° 05' W is:
   a) 339° 55' b) 200° 05' c) 159° 55' d) 110° 05'

3. In prismatic compass:
   a) magnetic needle and graduated circle do not move with box
   b) magnetic needle moves with the box
   c) line of sight does not move with the box
   d) graduated circle is fixed to the box and the magnetic needle always remains in N-S direction

4. Equilateral triangle formed during chain surveying is an example of _____ triangle.
   a) normal b) ideal c) well-conditioned d) ill-conditioned

5. The major objective of surveying is to prepare:
   a) Map b) profile c) cross-section d) longitudinal section

6. Single line or Double lines field book is used during:
   a) plane table surveying
   b) cadastral surveying
   c) compass surveying
   d) chain surveying

7. The survey done by government authorities for generating revenue is:
   a) topographical survey
   b) city survey
   c) cadastral survey
   d) engineering survey

8. Orientation of plane table by back sighting is done using:
   a) trough compass b) spirit level c) plumbing fork d) alidade

9. The closing error in a closed traverse is adjusted by:
   a) Bowditch's rule b) Lenmann's rule c) Simpson's rule d) Slide rule

10. If the staff is not held vertical at a levelling station, the R.L calculated from the observation would be:
    a) less than true R.L
    b) more than true R.L
    c) the true R.L
    d) free from curvature and refraction effect

11. The correction for refraction is approximately taken as _____ of curvature correction.
    a) $\left(\frac{1}{5}\right)^{th}$ b) $\left(\frac{1}{6}\right)^{th}$ c) $\left(\frac{1}{7}\right)^{th}$ d) $\left(\frac{1}{8}\right)^{th}$

12. Chainage in chain survey means:
    a) distance between end stations
    b) any distance measured by chain in field
    c) perpendicular distance of the object from the chain line
    d) distance of the object along the chain line from the zero end of the chain

13. Levelling should always commence from a:
    a) levelled ground b) highest point c) bench mark d) lowest point

14. During plane table surveying, details are located using:
    a) traversing method
    b) radiation method
    c) intersection method
    d) resection method

15. If the dimensions of a water tank were measured with a 20 m tape that was 0.1 % too short and mesearuments were recorded as L = 54 m, B = 36 m and D = 6.5 m. The true capacity of tank will be:
    a) 12673.946 cu.m b) 12598.130 cu.m c) 12260.698 cu.m d) 13018.883 cu.m

16. The magnetic declination at a place is 7°20'E, the bearing given by the compass is S5°40'W, the true bearing of the place is:
    a) S13°00'W b) S13°00'E c) S1°40'W d) S1°40'E

17. Random line method of ranging is adopted when end stations are:
    a) visible to each other
    b) lying in different plane
    c) non intervisible due to large distance
    d) non intervisible due to raised ground

18. The working edge of the telescopic alidade is known as:
    a) fiducial edge b) drawing edge c) beveled edge d) parallel edge

19. The angle between the prolongation of the preceding line the forward line of a traverse is called:
    a) included angle
    b) deflection angle
    c) direct angle
    d) reverse angle

20. To measure horizontal angles by reiteration method, several angles should have:
    a) local attraction
    b) angles less than 120°
    c) angles greater than 30°
    d) common vertex

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

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Semester: I
F.M. : 40

SECTION "B"

[4 Q.×4=16 marks]

Attempt any FOUR questions.

1. Explain with neat diagram the construction and working of optical square. [4]

2. Determine the area of property PACP from the following given data. [4]

Line	Bearing	Length (m)
PA	75°	25
PB	125°	27
PC	185°	30

3. Differentiate between (*Any TWO*) [2+2]
   a) Back sight and Fore sight
   b) Transiting and Swinging
   c) Topographic survey and Cadastral survey

4. Write short notes on (*Any TWO*) [2+2]
   a) Prolongation of survey line using theodolite
   b) Working from whole to part
   c) Plumb bob and its uses

5. What are the various sources of error while surveying? Explain it with reference to plane table surveying. [4]

SECTION "C"

[4 Q.×6=24 marks]

Attempt any FOUR questions.

6. Enlist and explain the functions of the instruments required for plane table surveying with appropriate sketches. [6]

7. A line 1.6 km long is measured with a steel tape which is 20 m under no pull at 30°C. The tape in section is $\frac{1}{8}$ cm wide and $\frac{1}{20}$ cm thick. If one-half of the line is measured at a temperature of 40°C while the other half at 50°C and the tape is attached to a pull of 200 N during measurement, find the corrected total length of the line, given the coefficient of expansion = 11.5 X 10^{-6} per °C, weight of tape per cu. m of steel = 0.078 N and E = 2.11 X 10^5 kg/cm^2. [6]

8. List the different types of obstacles in chain surveying with appropriate examples. Explain how to overcome those obstacles. [1+5]

9. The following readings were taken during reciprocal levelling between two points A and B, 1000 m apart. The reduced level of A is 193.835 m. Find the reduced level of B and collimation error of the instrument, if any with its direction. [6]

Instrument at	Staff reading at A, m	Staff reading at B, m
A	1.279	2.918
B	1.110	2.739

10. The followings were the bearings taken on a closed traverse. Compute the corrected bearings of the traverse legs. [6]

Line	F.B	B.B
AB	188°45'	7°45'
BC	118°15'	298°15'
CD	346°35'	166°30'
DE	337°05'	158°10'
EA	293°30'	113°00'