PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
END TERM EXAMINATION - JAN 2023

Semester : Semester III - 2021   **Date :** 5-JAN-2023
Course Code : CIV1005   **Time :** 1.00PM - 4.00PM
Course Name : Sem III - CIV1005 - Surveying   **Max Marks :** 100
Program : B.Tech. Civil Engineering   **Weightage :** 50%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.

PART A

ANSWER ALL THE TEN QUESTIONS   **10 X 2 = 20M**

1. Identify the Land Survey, where the natural features such as river, lake, hills and artificial features such as town, rail and road are surveyed
   a) City survey   (CO1) [Knowledge]
   b) Topographical Survey
   c) Cadastral Survey
   d) Chain survey

2. Which compass is based on the whole circle bearing system?
   a) Surveyor's compass   (CO1) [Knowledge]
   b) Theodolite
   c) Prismatic Compass
   d) Gunter's compass

3. The last reading taken from the instrument is called:
   a) End sight   (CO2) [Knowledge]
   b) Free sight
   c) Fore sight
   d) Back sight

4. When the vertical circle of the theodolite is to the left of the observer and the bubble is up. Then the telescope is said to be

a) Telescope Inverted   (CO2) [Knowledge]

b) Telescope Normal

c) Telescope is Abnormal

d) Telescioe Swing

5. RL of point A is 100m and its back sight is 2.0m. If the next reading at the change point is 1.5m, then find the RL of the change point.

a) 103.5   (CO2) [Knowledge]

b) 102

c) 99.5

d) 100.5

6. Civil surveying is an engineering operation that involves assessing and recording details about an area of land. Which branch of surveying is used to find the elevations of given points with respect to given or assumed datum.

a) Levelling   (CO2) [Knowledge]

b) Contouring

c) Traversing

d) Plane table surveying

7. A series of straight parallel and equally spaced contours represent _____

a) Hills   (CO3) [Knowledge]

b) Ponds

c) Plane surface

d) Desert

8. Plane Tabling is _____method of surveying

a) Graphical   (CO3) [Knowledge]

b) analytical

c) mathematical

d) none of above

9. _____instrument is used to sight an object

a) Compass   (CO3) [Knowledge]

b) Plumb Bob

c) Plumbing fork

d) Alidade

10. What is full form of UAV in Drone Survey?

a) Unmanned Aerial Vehicle   (CO3) [Knowledge]

b) Unmanned Aeroplance Vehicle

c) Unarmed Aircraft Vehicle

d) Unarmed Aeroplane Vehicle

PART B

ANSWER ALL THE FIVE QUESTIONS   **5 X 8 = 40M**

11. While conducting dumpy level survey, it is observed that the telescope and bubble tube are not in line with the instrument. Identify any two fundamental lines of dumpy level which helps in fixing the above problem. List and explain different types of bench marks.

(CO2) [Comprehension]

12. While performing theodolite survey it is found that the graduation on horizontal scale is having some error, identify the method and solution that can be adopted to eliminate the errors due to graduation on horizontal scale while measuring horizontal angle. With a neat sketch explain measurement of horizontal angle by reiteration method.

(CO2) [Comprehension]

13. Two contour lines of different elevations unite to form one line only in one case. Identify the type of cliff were the different elevation unite. Explain any Six characteristics of contour lines with neat sketch.

(CO3) [Comprehension]

14. In the given terrain condition plane table survey need to be carried out, and it was observed that there are errors due to external influence of magnetic substances like iron, nickel, cobalt etc, on though compass which is used in plane table survey. Identify the appropriate method of plane table orientation in order to carry out site mapping and give the reason. list the advantages and disadvantages of plane table surveying and list the accessories of plane table.

(CO3) [Comprehension]

15. In dam construction project high-quality aerial photographs, video, and collecting vast amounts of imaging data are to be carried out by reducing field time and survey cost. Identify the types of instrument required to initiate the proposed project. What are the benefits and uses of identified instrument?

(CO3) [Comprehension]

PART C

ANSWER ALL THE FOUR QUESTIONS   **4 X 10 = 40M**

16. A prismatic compass is a navigation and surveying instrument which is extensively used to find out the bearing of the traversing and included angles between them. A traverse ABCDA is made in the form of a square taking in clockwise order. If the bearing of AB is $S9^o 30'E$, find the bearings of the other side and provide a check.

(CO1) [Application]

17. In cross-section leveling, you determine the elevations of points on a succession of lines running at right angles to the lengthwise line of the alignment. Following consecutive readings were taken with a levelling instrument at intervals of 15M. 0.780, 1.535, 1.955, 2.430, 2.985, 3.480, 1.155, 1.960, 2.365, 3.640, 0.935, 1.045, 1.630 and 2.545. The instrument was shifted after sixth and tenth readings. Draw up a page of level book and determine the R.L of various points by HI method. Take the RL of the point on which the first reading was taken as 180.750 m.

(CO2) [Application]

18. Trigonometry, the branch of mathematics concerned with specific functions of angles and their application to calculations. The following observations were made to the target on a hill top to certain elevation at hill top. The height of the target F was 5m.

Inst. Stn	Reading on B.M(M)	Vertical angle on target at hill top	RL Of bench mark(M)
O2	2.550	$18^o6'$	345.580
O1	1.670	$28^o42'$	345.580

The instrument station were 100m apart and were in line with F. Calculate the RL of foot of the target.

(CO3) [Application]

19. The main objective of Double plane method is to find the R.L. of the top of an object, when the base of the object is. inaccessible and the instrument stations are not in the same. To find the elevation of the top of a hill, a flag staff of 4M height was erected and observations were made from two stations P and R, 80m apart. The horizontal angle measured at P between R and top of the flag-staff was 70° 30' and that measured at R between the top of the flag-staff and P was 78^o18'. The angle of elevation to the top of the flag staff was measured to be 20^o48' at R. Staff readings on Bench mark when the instrument was at P is equal to 2.965M and that with the instrument at R =3.055M. Calculate the elevation of the top of the hill if that of BM was 535.005M.

(CO3) [Application]

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