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**Presidency University**

**Bengaluru**

 **SCHOOL OF ENGINEERING**

**MAKE UP EXAMINATION-JULY-2024**

**Date**: 03.07.2024

**Time**: 1.30pm to 4.30pm

**Max Marks**: 100

**Weightage**: 50 %

**Course Code**: CIV1005

**Course Name**: Surveying (Integrated)

**Program & Sem**: B. Tech

 **Instructions:**

1. *Read the all questions carefully and answer accordingly.*
2. *Scientific and Non-programmable calculators are permitted.*

 **Part A [Memory Recall Questions]**

**Answer any 10 Questions. Each question carries two marks. (10Qx 2M= 20M)**

Q.NO.1. Chain surveying is the branch of surveying in which only linear measurements are made in the field. Chain surveying employs a lot of instruments, which of the instrument is used for setting right angles.

 a) Theodolite b) Ranging rod c) Wooden Cross staff d) Arrows

 [2M] (C.O.No.2 [Knowledge]

Q.NO.2. Compass surveying is a type of surveying in which the directions of surveying lines are determined with a magnetic compass. Which compass is based on the whole circle bearing system?

 a) Surveyor's compass b) Trough compass c) Prismatic Compass d) Gunter's compass

 [2M] (C.O.No.1) [Knowledge]

Q.NO.3. Levelling is a process of determining the height of one level relative to another. Which of the following is the least count of levelling staff?

 [2M] (C.O.No.1) [Knowledge]

Q.NO.4. Plane table surveying is a graphical method of survey in which the field observations and plotting are done simultaneously. The principle of plane table is?

 a) Traversing b) Ranging c) Triangulation d) Parallelism [2M] (C.O.No.3) [Knowledge]

Q.NO.5. Contouring in surveying is the determination of elevation of various points on the land. Closed contours of decreasing values towards their centre, represent a …..........

 a) Hill b) Depression c) Saddle d) River bed [2M] (C.O.No.3) [Knowledge]

Q.NO.6. The planning and design of all Civil Engineering projects such as construction of highways, bridges, tunnels, dams etc are based upon surveying measurements. The process of a location of intermediate points on a survey line is:

 a) Aligning b) Extending c) Ranging d) Offsetting [2M] (C.O.No.1) [Knowledge]

Q.NO.7. Plane table surveying is a graphical method of survey in which the field observations and plotting are done simultaneously. \_\_\_\_\_\_\_is used for sighting the objects and drawing the rays in plane table surveying.

 a) Plain Alidade b) Telescopic Alidade c) Both A and B d) None of above

 [2M] (C.O.No.3) [Knowledge]

Q.NO.8. Surveying, the first step of starting a new civil engineering project, is a very important branch of civil engineering. Which branch of surveying is used to find the elevations of given points with respect to given or assumed datum?

 a) Levelling b) Contouring c) Traversing d) Plane table surveying

 [2M] (C.O.No.1) [Knowledge]

Q.NO.9. The measurement of land and the fixation of its boundaries cannot be done without surveying. \_\_\_\_\_\_ is the most precise instrument designed for the measurement of horizontal and vertical angles.

 a) Survey chain b) Dumpy level c) Theodolite d) Telescope [2M] (C.O.No.2) [Knowledge]

Q.NO.10. The compass calculates bearings of lines with respect to magnetic needle. Prismatic compass is based on the reduced bearing system

 a) True b) False [2M] (C.O.No.1) [Knowledge]

Q.NO.11.Which of the following cannot be done with the help of theodolite in surveying?

a) Measuring horizontal distances

b) Prolonging survey lines

c) Laying off horizontal angles

d) Locating points on lines [2M] (C.O.No.1) [Knowledge]

**Part B [Thought Provoking Questions]**

 **Answer all the Questions. Each question carries five marks. (5Qx7M=35M)**

Q.NO.12. 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 of identified instrument? [7M] (C.O.No.2) [Comprehension]

Q.NO.13. While conducting theodolite survey, Vernier A and Vernier B is read and the average of both the Vernier’s are taken. Identify the type of error eliminated by taking average of both the verniers. List and explain steps involved in the temporary adjustments of the theodolite.

[7M] (C.O.No.2) [Comprehension]

Q.NO.14. The bearing of the line at any point is measured with respect to the north meridian in clockwise direction. Identify the type of bearing in the above. Differentiate between Whole Circle bearing and Quadrantile bearing with neat sketch. [7M] (C.O.No.1) [Comprehension]

Q.NO.15. 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 three characteristics of contour lines with neat sketch. [7M] (C.O.No.2) [Comprehension]

Q.NO.16. Closed contour lines with higher elevation towards the centre is indicated in a given topo sheet. Identify the type of terrain in the topo sheet. List the uses of contour map.

[7M] (C.O.No.3) [Comprehension]

Q.NO.17. 3. 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. Explain the temporary adjustment of prismatic compass.

[7M] (C.O.No.3) [Comprehension]

**Part C [Problem Solving Questions]**

**Answer any three Questions. Each question carries ten marks. (3Qx15M=45M)**

Q.NO.18. Profile leveling is used to establish changes in elevation along a line. Common lines requiring surveying are drains, roads, fences, and retaining walls. Following consecutive readings were taken with a levelling instrument at intervals of 20M. 2.375, 1.730, 0.615, 3.450, 2.835, 2.070, 1.835, 0.985, 0.435, 1.630, 2.255, and 3.630. The instrument was shifted after fourth and eighth readings. Draw up a page of level book and determine the R.L of various points by rise and fall method. Take the RL of the point on which the first reading was taken as 112.620 m. [15M] (C.O.No. 1) [Comprehension]

Q.NO.19. 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 S590 30’E, find the bearings of the other side and provide a check.

 [15M] (C.O.No. 2) [Comprehension]

Q.NO.20. 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. [15M] (C.O.No. 3) [Comprehension]

Q.NO.21. a) With a neat sketch explain measurement of horizontal angle by reiteration method. (5M)

b) 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. The instrument station were 100m apart and were in line with F. Calculate the RL of foot of the target. (10M)

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| Instrument Station | Staff reading on BM | Vertical angle on target at hill top | RL of benchmark(M) |
| O2 | 2.550 | 18o6’ |  345.5 |
| O1 | 1.670 | 28o42’ |

 (C.O.No. 3) [Comprehension]