**AIU Civil Engineering Major**

**Course – Surveying**

**AIU Exam**

**June 8, 2022**

**Subject of Courses**: Civil and Mechanical Engineering

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**Exam Starts Here.**

**Introduction**:

In this course I cover topics pertaining surveying. I will look into the two main types of surveying forms, explore what levelling is.

I will look into details what a contour interval is and a horizontal equivalent is. I will explore why surveying is a special aspect of civil engineering.

**Questions:**

Answer each question below with complete paragraphs. Also give examples to illustrate the ideas. As well, give examples on how you would apply the knowledge in your work or life.

**Chapter 2**

**1. What are the two basic principles of survey?**

(a) Plane Surveying

(b) Geodetic Surveying.

**2. What is meant by levelling?**

Levelling is defined as the art of determining the relative heights of points on the earth surface.

**3. What are the different types of bench marks?**

**And they are as follows:**

1. Great Trigonometrical Survey of benchmarks (GTS BENCHMARK).
2. Permanent benchmarks
3. Arbitrary benchmarks
4. Temporary benchmarks

**4. What are the instruments used for levelling?**

Dumpy level and the levelling staff is used for levelling.

**5. Name the two methods used for calculating the reduced levels of points.**

1. The Height of collimation or height of instrument method.
2. The rise and fall method.

**6. Write the formula for calculating the area by Simpson’s rule.**

formula for calculating the area by Simpson’s rule:

**A=d/3[h1+hn+2(h3+h5+h7+…+hn-2) +4(h2+h4+…+hn-1)].**

**7. What is the length of a link in a metric chain of 30 m length?**

**8. Write short notes on the types of surveying.**

**The types of surveying are as follows:**

1. Plane surveying
2. Geodetic surveying

**9. Define:**

**(a) Contour:** This is an imaginary line, on the ground, joining the points of equal elevation above the assumed datum.

**(b) Contouring:** This is defined as survey work, including office work of a contour plan.

**10. What is meant by contour interval?**

A contour interval is the vertical distance between any two consecutive contours.

**11. What do you understand by horizontal equivalent?**

Horizontal equivalent is the least horizontal distance between two consecutive contours.

**12. Differentiate between contour interval and horizontal equivalent.**

The difference between contour interval and horizontal equivalent is that a contour interval is the vertical distance between any two consecutive contours whilst a horizontal equivalent is the least horizontal distance between two consecutive contours.

**13. How will you distinguish between a depression and a hill using a contour map?**

Using a contour map, a depression is noted by lines spacely apart from each other whilst a hill is seen with lines closely packed together.

**Conclusion:**

**I got to learn the difference between a contour interval and a horizontal equivalent. Furthermore, I learnt what levelling is and how it is implemented in the field of civil engineering, I learnt how the dumpy level is used with its levelling staff.**

**I will apply this knowledge in my home area as I have a project I have to start doing. I will first have to take levels and survey the land before I build the house I need to build, by surveying, I will be able to find coordinates, etc. Definitely this will increase my salary as a civil engineer at the company I am working at the moment.**

**Bibliography:**

1. ***Basic Civil and Mechanical Engineering* by Shanmugam G**