

**F.Y. B.Tech. [Civil Engineering]  
CE 101- Elements of Civil Engineering.**

Time: 3 Hrs.

Max. Marks: 60

Instruction to candidates:

1. Answer ALL of questions.
2. Neat Diagrams must be drawn wherever necessary.
3. Assume suitable data, if necessary.
4. Figures to the right full indicates full marks.
5. Use of only non-programmable calculator is allowed.
6. Start answer of each question on new page.

Q.1. Solve any TWO.

a.) State the branches of civil engineering. On a highway construction project, what activities a civil engineering is required to perform? [5]

b.) Write a note on any one national civil engineering construction project. [5]

c.) State the properties and uses of -

1. Earth
2. Aggregate
3. Bitumen
4. Cement.

[5]

Q.2. Attempt any TWO.

a.) Give suitable examples to explain principles of <sup>surveying</sup> ~~summing~~. Give neat sketches to explain Base line and Offsets. [5]

b.) 1. In a clockwise closed traverse ABCA,  $AB = BC = CA = 200$  m, B is north of A. Find the fore and back bearing of AB, BC, & CA. [3]

2. Workout reduced bearings from the following whole circular bearing. i.  $37^{\circ} 30'$ . ii.  $178^{\circ} 00'$ . iii.  $302^{\circ} 15'$ . iv.  $204^{\circ} 30'$  [2]

c.) A leveling staff is held at every 10 m interval on a uniformly sloping ground with falling gradient 1 in 100. If the reading on the first station is 1.200 m work out readings on the next five staff stations. If the reduced level of the first staff station is 500.00. Find out the reduced levels of the above five staff stations. Enter the readings in a tabular form and apply necessary checks. [5]

Q.3. a.) What do you understand by 'Watershed'? Explain, how it is important to a civil engineer. [5]

b.) Give IS Specifications for a drinking water. State the sources of drinking water. [5]

c.) Give a flow diagram of water treatment plant. State the functions of various units of this plant. [5]

