

JK LakshmiPat University Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination, May, 2019
B. Tech. in Civil Engineering, Semester IV

Roll No.....

**CE402: Engineering Geology and Building
Construction**

Time: 3 hours

Max. Marks: 60

Instructions to students:

1. Do not write anything other than your roll number on question paper.
 2. Assume suitable data wherever required and mention it clearly.
 3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.
 4. Answer ALL the questions.
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1(a). In over-consolidated clayey soil, what kind of a foundation should be adopted for a residential building? Can grillage and raft foundations be provided as the supporting base for structures in loose sands and soft clays. Justify with comments. **(5 marks)**

1(b). For any given Civil Engineering structure located in an earthquake prone zone (assume zone 5), mention the types of failure that can be expected for a foundation in sand with water table located at 0.25 m below the ground surface. What could be the remedial measures to overcome the failure? **(5 marks)**

2(a). The major differences between shoring and scaffolding are _____ (Fill in the blanks). **(3 marks)**

2(b). In case of collapse/failure of a foundation of building, what are the two methods which are usually used in practice to repair/replace the existing foundation with a new one? Elaborate the methods with schematic diagrams. **(7 marks)**

3(a). Discuss on the classification of bricks along with their characteristics. Also, mention the various tests carried out on the bricks. **(7 marks)**

3(b). Mention the criteria that an engineer should consider while incorporating staircase in the planning stage of residential or public buildings? **(3 marks)**

4(a). Before using cement in large quantities in various construction works, mention the field as well as laboratory tests one should conduct on the cement sample to ascertain its usability. **(7 marks)**

4(b). What are general dimensions of doors and windows those are usually preferred in residential buildings and hospitals or libraries. **(3 marks)**

5(a). As a civil engineer, analyze the required geological investigations while selecting a suitable site for the construction of following structures:

(a) Bridge

(7 marks)

(b) Dam

5(b). Identify the feature in rocks that is observed as divisional planes or fractures along which there is no relative displacement and also classify them on the basis of spatial relationship.

(3 marks)

6(a) As per national building code, classify the building according to their use or character of occupancy.

(7 marks)

6(b) “It is true that water from none of sources can be naturally suitable and as economical as the ground water”. Justify the statement.

(3 marks)