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**F.E. Semester-II (Revised Course 2019-20)**  
**EXAMINATION AUGUST 2021**  
**Introduction to Civil Engineering**

**[Duration: Two Hours]****[Total Marks: 60]****Instructions:**

1. Answer THREE FULL QUESTIONS with ONE QUESTION FROM EACH PART+.
2. Marks to the right indicate full marks assigned to that question.

**Part A**

- Q.1 a) Explain the environmental challenge that the cement manufacturing industry is experiencing today and what is being done to reduce the carbon footprint of cement 07
- b) Explain how stones are classified? Explain with examples. 07
- c) Identify and briefly explain the mechanical properties of structural steel. 06
- Q.2 a) Differentiate between superstructure and substructure and briefly explain the various building components. 08
- b) What is the need of construction automation and list its benefits 04
- c) What are the different types of foundations? Explain with neat diagrams. 08
- Q.3 a) Briefly explain Lean construction practices. 05
- b) Explain what are CD wastes and their effects on the environment 05
- c) Out of 5 kg grab sand sample extracted from a construction site 2kg sand sample was sieved and the data collected is tabulated as shown in Table 1. Determine the zone and fineness modulus of the sand it belongs to? 10

Sr.No	Sieve Sizes	Sample Retained (gm)
1	4.75 mm	55
2	2.36 mm	230
3	1.18mm	380
4	600µm	385
5	300 µm	360
6	150 µm	300
7	75 µm	262
8	Pan	28
9	Total	2000

**Part B**

- Q.4 a) What is the importance of Bridges, Railways and Airports in our society 08  
 b) Show the different symbols used in building drawing with respect to a plan 05  
 c) Enlist the different software's used in Civil Engineering. How to validate their accuracies? 07
- Q.5 a) Explain the term cause of fire as commonly understood. Prepare a list of fire causes & use examples to explain. 07  
 b) Explain how will you tackle Electrical fire and Kitchen fire at home 05  
 c) Compare different mediums and their working principle that help to extinguish fire. 08
- Q.6 a) State and explain the various application of IoT in construction industry. 05  
 b) State the key components of smart city concepts 05  
 c) Explain the following terms: 10  
     i) Smoke Detectors  
     ii) Intelligent Building

**Part C**

- Q.7 a) Enlist the commendable works of Sir M Visvesvaraya and explain any one work that you are aware of 07  
 b) State the sources of extracting sand and explain why sea sand cannot be used for construction. 08  
 c) Explain in detail how you will construct a sound brick masonry wall. 05
- Q.8 a) Write a note on any one Ancient Monument and Modern Marvel 10  
 b) State the use of the following construction equipment's 06  
     i) Pulley Blocks  
     ii) Gantries  
     iii) Clam Shells  
 c) Differentiate between the Wheel mounted and crawler mounted Tractors. 04