

Reg. No.

**MANIPAL INSTITUTE OF TECHNOLOGY****MANIPAL***(A constituent unit of MAHE, Manipal)***IV SEMESTER B.TECH (CIVIL ENGINEERING)****END SEMESTER EXAMINATIONS, JUNE 2022****SUBJECT: BUILDING MATERIAL TECHNOLOGY [CIE 2252]****REVISED CREDIT SYSTEM**

(/ / 2022)

Time: 3 Hours

Max. Marks: 50

Instructions to Candidates:

- ❖ Answer ALL the questions
- ❖ Missing data may be suitably assumed

Q.No		Marks	CO
1A.	What are the different types of tests conducted on bricks? Explain any two of them.	5	5
1B.	What is meant by the terms "consistency," "plastic consistency," and "workability" as applied to concrete mixtures?	3	3
1C.	What is the significance of deleterious materials in aggregates?	2	1
2A.	What is geopolymer concrete? And what are its applications?	5	5
2B.	Explain how are aggregates classified based on shape.	3	1
2C.	What are the factors affecting the setting time of cement?	2	2
3A.	Write a short note on Types of Paving Tiles.	5	5
3B.	Explain how the strength of concrete is affected by: <ul style="list-style-type: none"> • Aggregate / cement ratio • Age of concrete • Compaction of concrete 	3	3
3C.	What is the significance of fineness of cement during its hydration process?	2	2
4A.	Design a M30 concrete for the following data: cement with 43 grade having specific gravity 2.9, Zone-III, Slump of 100 mm, for mild exposure condition, coarse aggregate size of 10mm having specific gravity 2.76 and natural sand as fine aggregate having specific gravity 2.68. Consider target mean strength as 40.72 N/mm ²	5	4
4B.	List out the benefits of using reactive powder concrete.	3	5
4C.	Why bulk density of aggregate is important?	2	1

5A.	Write the quality control report for the following test observations on brick size of the brick= 19cm x 9cm x 9cm Dry weight of the brick=3.1 Kg Weight of the brick after immersion in water for 24 hours= 3.41 Kg Load at failure= 20,918 Kg.	5	5
5B.	Write short note on durability of concrete.	3	3
5C.	How is false-set different from flash-set?	2	2