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Total No. of Questions : 08

Total No. of Pages : 02

M.Tech. (Civil Engg.) (2016 Batch) (Sem.–1) COMPOSITE MATERIALS Subject Code : MTCE-201 M.Code : 74237

Time : 2 Hrs.

Max. Marks : 50

INSTRUCTION TO CANDIDATES :

- 1. Attempt any FIVE question(s), each question carries 10 marks.
- 1. a) Briefly explain physical and chemical properties of Rice husk ash.

b) Explain the mechanism by which mineral admixtures are able to improve pumpability and finishability of concrete mixtures. In the amounts normally used, some mineral admixtures are water reducing, whereas others are not. Discuss with the aid of examples.

2. a) Write a note on selection of materials and proportioning of mixtures suitable for use in fiber-reinforced concrete, with special attention to how the requirements of toughness and workability are harmonised.

b) Give applications of different types of fibres in FRC.

3. a) Give an overview of Durability characteristics of High Volume Fly ash concrete (HVFA).

b) Give applications of HVFA.

4. a) Discuss why the use of water reducing and pozzolanic admixtures is essential for producing ultra high strength concrete.

b) What is the significance of super plasticized flowing concrete to the construction industry? What changes may have to be made in the mix proportions for flowing concrete?

- 5. a) What do you understand by the terms polymer concrete and polymer impregnated concrete?
 - b) Write a note on effects of Fiber Reinforced Plastics (FRP) on concrete elements under various loading conditions.

- 6. a) Discuss the effect of waste foundry sand on properties of mortar and concrete.
 - b) Write in brief about "Leachates from waste materials and their analysis."
 - 7. a) Briefly discuss the effect of temperature on setting time of concrete. What is the most efficient way of reducing the temperature of a fresh concrete mixture?
 - b) Explain why lower concrete temperatures permitted for massive concrete members?
 - 8. Write short notes on :
 - a) Physical & Chemical properties of Metakaolin.
 - b) Spalling characteristics.

<u>Note</u>: Any student found attempting answer sheet from any other person(s), using incriminating material or involved in any wrong activity reported by evaluator shall be treated under UMC provisions.

Student found sharing the question paper(s)/answer sheet on digital media or with any other person or any organization/institution shall also be treated under UMC. Any student found making any change/addition/modification in contents of scanned copy of answer sheet and original answer sheet, shall be covered under UMC provisions.