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CE – 404

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0024

Roll No.

B. Tech.

(SEM. IV) EXAMINATION, 2006-07

CONCRETE TECHNOLOGY

Time : 3 Hours]

[Total Marks : 100

Note : Attempt *all* questions.

1 Attempt any **four** of the following : **5×4=20**

- a) Describe the manufacture of Portland cement with the help of flow diagram.
- b) What is the influence of the tri and di-calcium silicates and tricalcium aluminate on the properties of cement ?
- c) Write short note on chemical properties of cement.
- d) What is hydration? Discuss the factors on which rate of hydration depends.
- e) How the initial setting time of cement is determined? Discuss the significance of initial and final setting time of cement.
- f) Discuss the role of use of pozzolanas and slag in the manufacture of cement.

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- 2** Attempt any **four** of the following : **5×4=20**
- a) Which shape of aggregate is considered the best for making concrete? Why?
 - b) Explain bulking of sand. How does it affect the quantity of sand in volume batching?
 - c) What is grading of aggregate? How is the aggregate graded?
 - d) How is the strength of aggregate determined?
 - e) Explain the following types of cement with their uses.
 - i) Slag cement
 - ii) Portland pozzolana cement
 - iii) High alumina cement.
 - f) What is fineness modulus? Explain the method of determining the fineness modulus for coarse aggregate.
- 3** Attempt any **two** of the following : **10×2=20**
- a) Discuss the factors you consider while deciding the strength of concrete to be used for a given work. Which factors should be considered while deciding the stripping time of form work?
 - b) What is workability of concrete? Discuss the various methods by which workability of concrete is measured.
 - c) Discuss the various factors which influence the strength of concrete. Explain the water-cement ratio law.
- 4** Attempt any **two** of the following : **10×2=20**
- a) Discuss the design mix and nominal mix concretes. Explain the steps involved in IS code method of concrete mix design.

- b) What is curing? How it is done? How does it influence the strength of concrete?
- c) Discuss the various objectives of using admixtures in concrete. What are the various types of admixtures?

5 Write short notes on any **four** of the following: **5×4=20**

- i) High strength concrete
- ii) Fibre reinforced concrete
- iii) Light weight concrete
- vi) Sulphur impregmented concrete
- v) Rebound hammer method of non-destructive testing of concrete
- vi) Need for non-destructive testing methods for concrete? Discuss the advantages of non-destructive testing for concrete