Total No. of printed pages = 3

19/5th Sem/DCE502

2021

CONCRETE TECHNOLOGY

Full Marks – 100

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer any *five* questions out of six.

1. (a) What are the different ingredients of concrete ? Name and describe their significance. 4+6=10

   (b) Discuss the importance of concrete. 4

   (c) List out the various oxide composition present in cement and with their percentage presence. 6

2. What are the various compound composition present in cement ? Discuss the roll of each compound composition in detail along with any neat graph as applicable. 4+16=20

3. (a) Classify aggregates according to their size, shape and unit weight in detail. 3×4=12

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(b) Name at least five characteristics of aggregates. Describe each of them. 8

4. (a) Define admixture. List out the various functions of admixtures. 2+8=10

(b) Classify admixtures under general purpose admixtures and specialty category admixtures. Discuss all the general purpose in detail. 4+6=10

5. (a) Define/describe the following terms related to cement/concrete : 10×2=20

(i) Workability of concrete

(ii) Segregation

(iii) Bleeding

(iv) Roll of plasticizers

(v) Importance of quality water for concrete making

(vi) Efflorescence in concrete

(vii) Laitance in concrete

(viii) Soundness of cement

(ix) Soundness of aggregates.

(x) Air entraining admixtures.

6. (a) Define Rheology of concrete. 2

(b) Discuss the various parameters defining the rheology of fresh concrete using a suitable flow chart. 8

(c) What are the various methods using which we can determine workability of fresh concrete ? Name them. Discuss slump test and compacting factor test methods in detail. 4+3+3=10