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Question Paper Code : 71508

B.E/B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Sixth Semester

Civil Engineering

CE 6002 – CONCRETE TECHNOLOGY

(Regulation 2013)

Time: Three hours

Maximum: 100 marks

PART – A

(10 x 2= 20 marks)

1. What are the different type of test conducted on coarse aggregate?
2. Write any two advantages of sulphate resistance cement.
3. What is the importance of water proofers added in cement concrete?
4. Define metakoline.
5. Write any four grade of cement concrete.
6. On what circumstances high grade concrete are utilized effectively.
7. What are the advantages of ring tension test.
8. Define Bleeding
9. Enumerate SIFCON
10. Write any two advantages of geo polymer concrete.

Part – B (5 x 13 = 65 marks)

11. (a) (i) Explain the effect of properties of aggregate on quality of concrete. (08)
(ii) What is the effect of W/C ratio on strength and durability of concrete? (08)
(OR)
(b) (i) Explain mechanical properties of OPC (08)
(ii) compare the physical properties of 33, 43 and 53 grade of concrete (08)
12. (a) Differentiate between the accelerators and retarders with suitable examples and also how you can determine dosage of admixtures (16)
(OR)
(b) Explain the effect of concrete properties while adding silice flume and GGBS (16)

13. (a) Design a concrete mix for M40 grade of concrete using IS method with the following data.

- (i) Type of cement - OPC 43 grades
- (ii) Maximum size of aggregate - 20mm
- (iii) Exposure condition - Severe
- (iv) Workability -125mm
- (v) Minimum cement content -320kg/m³
- (vi) Maximum W/C - 0.45
- (vii) Method of placing concrete -Pumping
- (viii) Degree of supervision - Good
- (ix) Type of aggregate - Crushed angular aggregate
- (x) super plasticizer will be used
- (xi) Specific Gravity of Coarse aggregate-2.80
- (xii) Specific Gravity of fine aggregate-2.70
- (xiii) water absorption: coarse aggregate- 0.5%, fine aggregate-1%

Grading of coarse aggregate is conforming to Table 2 of IS383 and grading of fine aggregate is falling in Zone II

(OR)

(b) Design a concrete mix for M30 grade of concrete using F type fly ash. Adopt IS method with the following data.

- (i) Type of cement - OPC 43 grades
- (ii) Maximum size of aggregate - 20mm
- (iii) Exposure condition - Severe
- (iv) Workability -100 mm
- (v) Minimum cement content -320kg/m³
- (vi) Maximum W/C - 0.46
- (vii) Method of placing concrete -Pumping
- (viii) Degree of supervision - Good
- (ix) Type of aggregate - Crushed angular aggregate
- (x) super plasticizer will be used
- (xi) Specific Gravity of Coarse aggregate-2.80
- (xii) Specific Gravity of fine aggregate-2.70
- (xiii) water absorption: coarse aggregate- 0.5%, fine aggregate-Nil
- (ix) Specific gravity of fly ash -2.2

Grading of coarse aggregate is conforming to Table 2 of IS383 and grading of fine aggregate is falling in Zone II (16)

14. (a) Explain the Procedure of compressive, tensile and flexural strength test conducted on cement concrete elements with neat sketch (16)

(OR)

(b) Explain the factors influencing the strength of concrete (16)

15.(a) Explain the following:

(i) Light weight concrete

(ii) Fibre reinforced concrete

(iii) Polymer concrete

(iv) High strength concrete. (16)

(OR)

(b) Explain the following:

(i) Ferro cement concrete

(ii) High performance concrete

(iii) GeoPolymer concrete

(iv) Shotcrete (16)