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Question Paper Code: 49011

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Sixth Semester

Civil Engineering

14UCE908-CONCRETE TECHNOLOGY

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

- The commonly used material in the manufacture of cement is
 - Sandstone
 - Slate
 - Limestone
 - Graphite
- An aggregate is said to be flaky if its least dimension is less than
 - 1/5th of mean dimension
 - 2/5th of mean dimension
 - 3/5th of mean dimension
 - 4/5th of mean dimension
- An accelerator shortens all of the following except
 - Setting time
 - Period of curing
 - Period of removal of formwork
 - Strength of concrete
- The specific gravity of silica fume is
 - 3.15
 - 2.2
 - 2.8
 - 1.9
- The Indian Standard code for concrete mix design is
 - IS 10262
 - IS 456
 - IS 3370
 - IS 1893

6. In concrete mix design, allowance for bulking of sand is necessary in case of
- (a) Weigh batching (b) Volume batching
(c) Both (a) and (b) (d) None of the above
7. Specified compressive strength of concrete is obtained from cube tests at the end of
- (a) 7 days (b) 14 days (c) 21 days (d) 28 days
8. Slump test of concrete is a measure of its
- (a) Workability (b) Compressive strength (c) Tensile strength (d) Impact value
9. In fibre reinforced concrete, fibre volume is less than
- (a) 3% (b) 5% (c) 8% (d) 10%
10. The cement-sand ratio in ferrocement matrix should not be leaner than
- (a) 1:1.5 (b) 1:2 (c) 1:3 (d) 1:4

PART - B (5 x 2 = 10 Marks)

11. List the types of cement.
12. What are retarders?
13. What is meant by mix design?
14. List the test methods to determine workability of concrete.
15. What is high strength concrete?

PART - C (5 x 16 = 80 Marks)

16. (a) What are the chemical compounds present in cement? Explain. (16)
- Or
- (b) Discuss in detail about any two tests on coarse aggregates. (16)
17. (a) Write notes on
- (i) Super plasticizers (8)
- (ii) Water proofers (8)

Or

- (b) Explain about the effect of fly ash on the properties of concrete. (16)
18. (a) Design an M20 grade concrete mix for the following requirements using IS method.
Find the mix proportions by weight and volume.
Cement – OPC, Specific gravity – 3.15, bulk density – 1500kg/m^3
Sand grading zone – III, specific gravity – 2.6, bulk density – 1700kg/m^3
Coarse aggregate – 20mm angular, specific gravity – 2.62, bulk density – 1600kg/m^3
Degree of workability – 0.90 compacting factor, quality control – good (16)

Or

- (b) Write down the steps involved in ACI method of mix design. (16)
19. (a) Describe about any two tests for determining workability of concrete. (16)

Or

- (b) Explain about the tests to determine compressive strength and flexural strength of hardened concrete. (16)
20. (a) Discuss in detail about high performance concrete. (16)

Or

- (b) Explain about the properties of fibre reinforced concrete. (16)
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