

Question Paper

Exam Date & Time: 30-Apr-2019 (02:00 PM - 05:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES II SEMESTER B.Sc.(Applied Sciences) IN ENGINEERING END SEMESTER THEORY EXAMINATIONS, APR / MAY 2019 Building Science and Tech. [ICE 121]

Marks: 100

Duration: 180 mins.

Answer 5 out of 8 questions.

- 1) Explain the significance of tricalcium silicate and tricalcium aluminate in cement (4)
 - A) a
 - b Explain in detail how the segregation is taken care during placing the concrete? (3)
- B) Explain different classification of aggregates based on origin, size, shape and density. (7)
- C) Explain Plywood and its advantages (3)
 - a
 - b Explain Paving tiles and vitrified tiles (3)
- 2) With neat sketches explain the working of rebound hammer used to non-destructively test hardened concrete and list its advantages. (7)
 - A)
 - B) What is the importance of curing of concrete? Explain the following types of curing a) retaining formwork b) ponding method c) electrical curing (6)
 - C) What are the objectives of painting? Define vehicle and solvent in a paint along with their functions and examples. (7)
- 3) Explain all the tests to be conducted on cement and mention their purposes (8)
 - A)
 - B) Explain the structure of bullet proof glass. Differentiate between the properties of flint glass and bottle glass. (5)
 - C) Write the differences between coal tar, wood tar and mineral tar along with their uses. (7)

- 4) With neat sketch explain Square rubble masonry. (4)
- A) a
- b With neat sketch explain Random rubble masonry. (4)
- B) Sketch a neat labelled diagram of a brick masonry arch and explain its components. What are the advantages and disadvantages of arches in a building? (7)
- C) What is corrosion of steel in RCC structures? What are the factors affecting corrosion? Mention the effects of corrosion on RCC structural elements. (5)
- 5) What is underpinning? Explain different types of underpinning methods with the help of neat sketch. (6)
- A)
- B) Explain the procedure for laying mosaic flooring. What are its advantages? (6)
- C) What is high strength concrete? What are the factors to be considered while designing high strength concrete? Under what circumstances it is used? (8)
- 6) Explain various steps involved in the manufacturing of concrete from the selection of materials to curing? (8)
- A)
- B) How soundness of cement is determined in the laboratory as per Indian Standard specifications? Explain the factors effecting the durability of hardened concrete? (6)
- C) Define seasoning of timber and explain different methods of artificial seasoning. (6)
- 7) Mention all the tests conducted on aggregates? Explain any two tests. (7)
- A)
- B) With a neat diagram explain the characteristics of Flemish bond in a brick masonry. Mention the advantages and disadvantages. (7)
- C) What are Bogue's compounds and how each of these compounds influence the characteristics of Portland cement ? (6)
- 8) What is a scaffolding? Explain the classification of scaffoldings (6)

- A) with a neat sketch.
- B) Explain Ultrasonic pulse velocity test along with its merits and demerits. (7)
- C) What are the various components of hardened concrete structure? Discuss the importance of transition zone and its effect on properties of hardened concrete. (7)

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