

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Winter 2022 - 23 Examination

Semester: 7
Subject Code: 203104349
Subject Name: Advanced Concrete Technology

Date: 08/10/2022
Time: 10:30am to 1:00pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (All are compulsory) (Each of one mark)**(15)**

1. What is the importance of the Standard Consistency Test?
 - a) It is used to determine the quantity of water
 - b) It is used to determine the quality of aggregates
 - c) It is used to determine the quality of cement
 - d) None of the above
2. Which of the following ratio is also known as water-cement ratio?
 - a) Weight of water to the weight of aggregates
 - b) Density of cement to the Density of cement
 - c) Weight of water to the weight of cement
 - d) Volume of cement to the volume of water
3. Which of the following increases the workability of concrete?
 - a) Decreasing size of aggregates
 - b) Increasing flaky aggregates
 - c) Increasing size of aggregates
 - d) Increasing fine aggregates
4. How is Creep related to the strength of concrete?
 - a) Directly proportional
 - b) Inversely proportional
 - c) Equal
 - d) Similar
5. Which of the following is not a type of Non-destructive testing?
 - a) Ultrasonic test
 - b) Eddy current testing
 - c) Compression testing
 - d) Visual testing
6. High strength concrete is defined purely on the basis of _____
 - a) Tensile strength
 - b) Compressive strength
 - c) Good Aggregates
 - d) Poor Aggregates
7. What are Plasticizers?
 - a) Which reduces water for workability
 - b) Which oxidizes water for workability
 - c) Which decreases workability at the same water content
 - d) Which adds water for workability
8. Maximum nominal size of aggregates to be used in concrete may be as large as possible within the limits prescribed by _____
 - a) IS 456-2000
 - b) IS 456-2010
 - c) IS 513-1999

- d) IS 465-2000
9. A higher temperature of fresh concrete results in a _____ hydration of cement.
 - a) More rapid
 - b) Rapid
 - c) Low
 - d) Very low
 10. It is difficult to retain moisture for hydration due to rapid evaporation of water during curing period.
 - a) True
 - b) False
 11. Steel fibers helps in the enhancement of properties of concrete.
 - a) True
 - b) False
 12. No fines concrete is manufactured by _____.
 - a) By adding no fines materials from normal concrete
 - b) By eliminating fine aggregate from normal concrete
 - c) By reducing its strength
 - d) By increasing its strength
 13. Density of no fines concrete with light weight aggregate vary from _____ kg/m³.
 - a) 1600-1900
 - b) <300
 - c) >2500
 - d) >300
 14. The light-weight concrete is prepared by _____.
 - a) Mixing Portland cement with sawdust in specified proportion in the concrete
 - b) Using coke-breeze, slag as aggregate in the concrete
 - c) Mixing Al in the concrete
 - d) Mixing Fe in the concrete
 15. Which one is not used as air entraining agents?
 - a) Alumina
 - b) Natural resins
 - c) Fats
 - d) Oil

Q.2 Answer the following questions. (Attempt any three) **(15)**

- A) Explain the factors that influence the choice of mix design.
- B) Enlist Factors Affecting Workability
- C) What precautions are taken while transporting the concrete?
- D) Write step wise procedure for Hand mixing of concrete.

Q.3 A) Explain the procedure for Rapid Chloride Penetration Test. **(07)**

B) Enlist different types of Special Concrete and explain any one in detail. **(08)**

OR

B) Explain the Design Procedure for IS method of Concrete Mix Design. **(08)**

Q.4 A) Write the test procedure for Ultrasonic Pulse Velocity Test. **(07)**

OR

A) Explain in detail about the statistical quality control and acceptance criteria of concrete. **(07)**

B) Explain the procedure for Rebound Hammer Test. **(08)**