

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Winter 2019 - 20 Examination

Semester: 3
Subject Code: 203104209
Subject Name: Material Testing and Evaluation

Date: 04/12/2019
Time: 02:00 pm to 04:30 pm
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. If the slump of concrete mix is 60mm, its workability is
 (a) Very Low (b) Low (c) medium (d) High
2. The specifications of a cement bag for storage are
 (a) Weight 50 kg (b) Height 180cm (c) Volume 35 liters (d) All of the above
3. Shrinkage increases with
 (a) increase in the water-cement ratio (c) decrease in humidity
 (b) increase in cement content (d) all of the above
4. For a water-cement ratio of 0.6 the water content per bag of cement is
 (a) 10 kg (b) 20 kg (c) 30 kg (d) 40 kg
5. The ultimate tensile strength of structural mild steel is about:
 (A) 160 N/mm² (B) 260 N/mm²
 (C) 420 N/mm² (D) 520 N/mm²
6. Write the equation suggested by IS 456: 2000 for calculating modulus of elasticity of concrete.
7. Write Bogue's Compound
8. Define the term heat of hydration
9. List the commonly used retarders.
10. Define the term Creep in concrete.
11. How will you classify fine aggregates and coarse aggregates?
12. State the nominal mix proportion for M₂₀
13. State different types of Steel available in construction industry.
14. Write sizes of cubes used in compressive strength of concrete and cement
15. List the membrane curing compounds.

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

- A) Write explanatory note on size and shape of aggregates
- B) State the limitations of slump test
- C) Difference between Setting of cement and Hardening of cement
- D) State the factors affecting workability of concrete.

Q.3 A) Enlist the principal methods adopted for transportation of concrete and explain them in brief. (07)

- B) What is carbonation? What are the factors affecting carbonation (08)

OR

- B) List the situations where concrete is subjected to aggressive environment. (08)

Q.4 A) Enlist the Non Destructive Tests and describe Rebound Hammer test in detail. (07)**OR**

- A) How will you check the cement on field? How is the field testing important (07)

- B) Give the mix design steps for Indian standard methods (08)