

Q1 Which of the following tests compares the dynamic modulus of elasticity of samples of concrete?

- (a) Compression test
- (b) Ultrasonic pulse velocity test
- (c) Split test
- (d) Tension test

Q2 UPV method in nondestructive testing for concrete is used to determine:

- 1. Compressive strength
 - 2. Existence of voids
 - 3. Tensile strength
 - 4. Static modulus of concrete
 - 5. Dynamic modulus of concrete
- (a) 1, 2, 3 and 4 (b) 1 and 3 only
(c) 2 and 5 only (d) 3 and 5 only

Q3 Consider the following parameters of concrete:

- 1. Impermeability
- 2. Compactness
- 3. Durability
- 4. Desired consistency
- 5. Workability

Which of the above parameters are relevant for 'water-cement ratio'?

- (a) 4 and 5
- (b) 1 and 2
- (c) 2 and 4
- (d) 3 and 5

Q4 Consider the following statements:

Presence of Na_2O and K_2O in concrete leads to

- 1. Expansive reaction in concrete
- 2. Cracking of concrete
- 3. Disruption of concrete
- 4. Shrinkage of concrete

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1, 2 and 3
- (d) 3 and 4

Q5 Consider the following statements:

The addition of CaCl_2 in concrete results in

- 1. increased shrinkage
- 2. decreased setting time
- 3. decreased shrinkage
- 4. increased setting time

Which of the above statements is/are correct?

- (a) 1 only
- (b) 2 and 3
- (c) 3 and 4
- (d) 1 and 2

Q6 **Statement (I)** : Grading of concrete is based on 28-day strength.

Statement (II) : Concrete does not gain any further strength after 28-day curing.

Q7 **Statement (I)** : Addition of admixture improves the workability of concrete.

Statement (II) : Addition of admixture increases the strength of concrete.

Q8 **Statement (I)** : Concrete of desired strength can be achieved by weight-batching method.

Statement (II) : Volume-batching method does not take into account bulking of aggregates, hence concrete of desired strength cannot be achieved by volume-batching.

Q9 In a concrete mix, if the maximum size of coarse aggregate is increased, the proportion of fine to coarse aggregate should be

- (a) Increased
- (b) Decreased
- (c) Kept the same
- (d) Not dependent on size of aggregates

Q10 Consider the following statements:

1. Modulus of Elasticity of concrete increases with increase in compressive strength of concrete
2. Brittleness of concrete increases with decrease in compressive strength of concrete.
3. Shear strength of concrete increases with increase in compressive strength of concrete.

Which of the above statements are correct?

- (a) 1 and 2 only
- (b) 1, 2 and 3
- (c) 1 and 3 only
- (d) 2 and 3 only

Q11 Consider the following statements related to 'non-destructive testing of concrete':

1. Indentation test is used to assess the quality of concrete.
2. Resonant Frequency Method is based on a laboratory test.

3. Compressive strength of concrete is estimated through Pulse Velocity Measurement.
4. Dynamic Modulus of Elasticity is determined by a Sonometer Test.
5. Thickness of concrete can be estimated by in-situ Rebound Hammer Test.

Which of the above statements are correct?

- (a) 1, 2 and 3 only (b) 1, 2 and 5 only
(c) 1, 2, 3 and 4 only (d) 1, 2, 3, 4 and 5

Q12 **Statement (I)** : Deadweight of a structure can be reduced by using light weight concrete in construction.

Statement (II) : Aerated concrete, being of light weight, is used in R.C.C. multi-storied construction.

Q13 **Statement (I)** : Admixture in concrete is an essential constituent of concrete.

Statement (II) : Admixture helps in improving or modifying specific qualities in concrete.