- Q 1 Which one of the following is correct regarding the most effective requirements of durability in concrete?
 - (a) Providing reinforcement near the exposed concrete surface
 - (b) Applying a protective coating to the exposed concrete surface.
 - (c) Restricting the minimum cement content and the maximum water cement ratio and the type of cement.
 - (d) Compacting the concrete to a greater degree.
- Q 2 Which one of the following is not required in concrete mix-design?
 - (a) Degree of quality control of Concrete
 - (b) Workability of concrete
 - (c) Characteristic compressive strength of concrete at 28 days
 - (d) Initial setting time of cement
- Q.3 Consider the following statements about the air entraining admixture in concrete:
 - 1. Improve workability
 - 2. Improve durability
 - 3. Reduce segregation duration placing
- 4. Decrease concrete density Which of the above statements are correct?
- a) 1. 2. 3 and 4
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 3 and 4 only
- Q 4 Consider the following statements:

Admixtures are added to concrete to

- 1. Increase its strength.
- 2. Reduce heat of hydration.
- 3. Delay the setting of cement.
- 4. Reduce water-cement ratio.

Which of the above statements is

fare correct

(a) 1 only

(b) 1 and 2

Q 5 Consider the following statements

- 1. Strength of concrete cube is inversely proportional to water-cement ratio.
- 2. A rich concrete mix gives a higher strength than a lean concrete mix since it has more cement content.
- 3. Shrinkage cracks on concrete surface are due to excess water in mix

Which of the above statements is/are correct?

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

Q 6 Consider the following statements:

- The crushing strength of concrete is fully governed by water-cement ratio.
- has no effect on strength of concrete at high watercement ratios
- 3. Workability of concrete is affected by improper grading of aggregates.

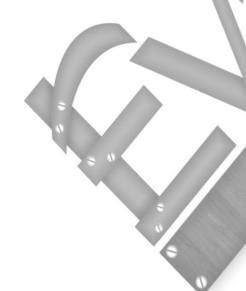
Which of the above statements is fare correct?

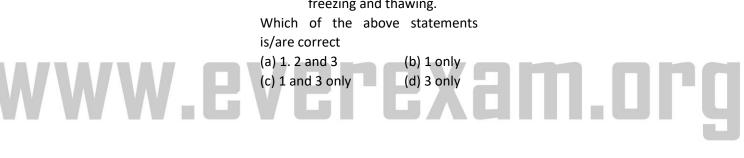
- (a) 1. 2 and 3 (b) 2 and 3 only
- (c) 2 only (d) 3 only

Q 7 Consider the following statements:

Entrainment of air in concrete is done so as to

- 1. Increase the workability.
- 2. Increase the strength
- 3. Increase the resistance to freezing and thawing.





Q 8 Assertion (A) :In order to obtain higher degree of workability in cement concrete. both water content and proportion of cement should be increased.

Reason (R): Increase in watercement ratio decreases the strength of cement concrete; a mix with higher workability must have higher proportion of cement in it.

Q 9 For different concrete specimens, each hydrated to the same degree, the permeability is

- (a) Higher with lower water cement ratio and higher cement content
- (b) Lower with lower water cement ratio and higher cement content
- (c) Lower with higher water cement ratio and lower cement content
- (d) Lower with "higher water cement ratio and higher cement content.

Q 10 Consider the following statements:

- 1. The compressive strength of concrete decreases with increase in water cement ratio of the concrete mix
- Water is added to the concrete mix for hydration of cement and workability.
- 3. Creep and shrinkage of concrete are independent of the water cement ratio in the concrete mix.

Which of these statements are correct?

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

Q 11 According to the Indian Standard Specifications, concrete should be cured under a humidity of



- (c) 70%
- (d) 60%

Q12 Consider the following statements:

In a typical compression test with a cylindrical concrete specimen, failure is initiated by

- 1. crushing in compression
- 2. inclined shear failure
- longitudinal tensile cracks
 11

Which of these statements is/are correct?

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

Q 13 If one intends to obtain the best workability of concrete, the preferred shape of aggregate is

- (a) round
- (b) annual
- (c) triangular (c
 - (d) flinty

Q 14 Consider the following statements as regards rheology of concrete :

- 1. It deals with strength of concrete.
- 2. It deals with deformation in concrete.
- 3. It is the study of deformation and flow of concrete.
- 4. it deals with rate of shear and shear stress in concrete.

Which of these statements are correct?

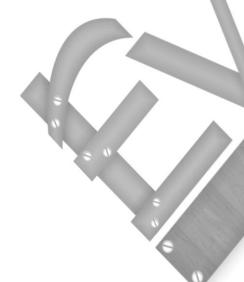
- (a) 1,2,3 and 4
- (b) 3 and 4 only
- (c) 2 and 3 only
- (d) 1 and 2 only

Q 15 Consider the following for durability of well- graded concrete:

- 1. The environment
- 2. Cover to embedded reinforcement
- 3. Shape and size of concrete member

Which of these are correct?

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



Q 16 Consider the common methods related to testing of concrete:

- 1. Consistency
- 2. Compacting factor
- 3. Vee-Bee
- 4. Setting time
- 5. Slump

Which of these methods refer to measuring workability of concrete?

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

Consider the following constituents of a high performance concrete (HPC):

- 1. Cement
- 2. Fine aggregate
- 3. Coarse aggregate
- 4. Water
- Mineral admixture
- 6. Chemical admixture

Which of these constituents are relevant for HPC?

- (a) 1,2,3,4,5 & 6 (b) 1,2,3,4 & 5 only
- (c) 2,3,4,5&6 only (d) 1,2,3,5&6 only

Q 18 The strength of concrete depends on

- 1. Type of mortar
- 2. Proportion between coarse and aggregates.
- Water cement ratio
- 4. Temperature at time of mixing
- (a) 1 and 2 (b) 2 and 3
- (c) 2 and 4 (d) 3 only

The workability of concrete is assessed through:

- 1. Slump test
- 2. Compaction factor test
- 3. Setting time of cement
- 4. Le Chatelier's apparatus
- (a) 1 and 2
- (b) 2 and 3
- (c) 3 and 4
- (d) 4 and 1

Q 20 Consider the following statements as describing



Rheological behaviour of fresh concrete:

- 1. Newtonian
- 2. Non-Newtonian
- 3. Ratio of shear stress to shear rate is constant
- 4. Ratio of shear stress to shear rate depends upon the shear

Which of these statements are correct?

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

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