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

(c) 2 and 3 (d) 3 and 4

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:

1. The crushing strength of concrete is fully governed by water-cement ratio.
2. has no effect on strength of concrete at high water-cement 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.

Which of the above statements is/are correct

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

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 water-cement 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
2. 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

(a) 90%
(b) 80%

(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
3. longitudinal tensile cracks

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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 (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

Q 17 Consider the following constituents of a high performance concrete (HPC) :

1. Cement
2. Fine aggregate
3. Coarse aggregate
4. Water
5. 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.
3. Water cement ratio
4. Temperature at time of mixing

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

Q 19 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 the

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 rate

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