

'I' Scheme

Sample Question Paper

Program Name : Civil Engineering Program Group
Program Code : CE/CR/CS
Semester : Third
Course Title : Concrete Technology
Max. Marks : 70

22305

Time: 3 Hrs.

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any Five of the following.

10 Marks

- a. List four Bogue's compounds with their percentage in ordinary Portland cement.
- b. State four properties of fine aggregate.
- c. Define Duff Abraham's w/c ratio law.
- d. Define concrete mix design.
- e. Name two materials used for water proofing.
- f. State the two purposes of using air entraining admixtures in the concrete.
- g. Explain the process of hydration of cement.

Q.2 Attempt any Three of the following.

12 Marks

- a. Explain the procedure to determine standard consistency of cement.
- b. List the properties of fine aggregate and explain one of them in detail.
- c. Calculate the fineness modulus of a sample using following data :

Total weight of sample is 500g.

Sieve size	2.36 mm	1.18 mm	600 μ	300 μ	150 μ	Pan
Weight in gm	10	105	137	175	63	10

- d. Interpret the relationship between the moisture content and the change in volume of fine, medium and coarse aggregate to explain the phenomenon of bulking with relevant sketch.

Q.3) Attempt any Three of the following.

12 Marks

- a. Suggest the degree of workability for the following:
 - i. Building concrete, ii. Mass concrete, iii. Pumped concrete, iv. Tremie concrete.
- b. Draw the neat labeled sketch of slump cone with all dimensions. Suggest the slump values for the following situation:

- i. Concrete used for road structures vibrated by power operated machine.
- ii. Concrete used for road structures vibrated by hand operated machine.
- c. Explain two factors affecting the workability of concrete.
- d. Explain two properties of concrete in hardened stage.

Q.4) Attempt any Three of the following.

12 Marks

- a. Write the necessity of supervision of the concrete operations.
- b. Write the procedure of Mix Design with reference to the provisions laid in IS -10262-2009.
- c. Write four properties of Ready Mix Concrete.
- d. State one property of following admixtures with relevant application:
 - i. Super plasticizer, ii. Accelerating admixture
 - iii. Retarding admixture, iv. Air entraining admixture
- e. State the precautions to be taken in concreting operations in hot weather.

Q.5) Attempt any Two of the following.

12 Marks

- a. Explain the procedure of conducting a rebound hammer test for measuring the surface hardness with reference to following points :
 - (i) Rebound number and its significance
 - (ii) Construction of equipment
 - (iii) Sketch of equipment
 - (iv) limitations of test
- b. Explain the procedure to determine the compressive strength of concrete.
- c. Explain with sketch the Pulse velocity method used in testing the concrete.

Q.6) Attempt any Two of the following.

12 Marks

- a. Classify the methods of curing of concrete with detail explanation of one method.
- b. Suggest the relevant method of waterproofing used in construction for the following situation.
 - i. Terrace of building, ii. Swimming pool, iii. Water closet and bathroom,
 - iv. Chajja v. Water tank, vi. Concrete dam.
- c. Propose the relevant type of formwork for following structures.
 - i. Concrete Beam, ii. Bridge Pier, iii. Deck slab of a Bridge in creek,
 - iv. Architectural design, v. High rise building. vi. Chimney

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'I' Scheme

Sample Test Paper - I

Program Name : Civil Engineering Program Group
Program Code : CE/CR/CS
Semester : Third
Course Title : Concrete Technology
Max. Marks : 20

22305

Time: 1 Hour

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR of the following.

08 Marks

- a) State four types of cement.
- b) State physical properties of cement.
- c) Classify the coarse aggregate with reference to its source and size.
- d) State the importance of size of aggregates in determining the strength of the concrete.
- e) List two properties of concrete in plastic state and in hardened state.
- f) Calculate quantity of water in litres per bag of cement, if w/c is 0.50.

Q.2 Attempt any Three of the following.

12 Marks

- a) Explain the method of storage of cement at site with its effect on strength of cement.
- b) Write the procedure to determine impact value of coarse aggregates.
- c) Calculate the fineness modulus of a sample using following data :

Total weight of sample is 1000g.

Sieve size	4.75 mm	2.36 mm	1.18 mm	600 μ	300 μ	150 μ	Pan
Weight in gm	22	115	225	240	280	105	13

- d) Explain four factors affecting workability of concrete.
- e) Explain the significance of w/c ratio with reference to the graph of w/c ratio Vs. compressive strength of concrete

'I' Scheme

Sample Test Paper - II

Program Name : Civil Engineering Program Group
Program Code : CE/CR/CS
Semester : Third
Course Title : Concrete Technology
Max. Marks : 20

22305

Time: 1 Hour

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR of the following.

08 Marks

- a) List two methods of Mix design of concrete.
- b) State the significance of testing of concrete.
- c) Distinguish between weigh batching and volume batching.
- d) Draw the concrete operation chain.
- e) Write two purposes of admixtures in the concrete with examples.
- f) State the uses of two special concrete.

Q.2 Attempt any THREE of the following.

12 Marks

- a) List four objectives of concrete mix design.
- b) List four methods of transportation of concrete. Explain one of them.
- c) Explain the importance Non-destructive Testing of concrete with the names of methods deployed in it.
- d) Draw a sketch of form work of a rectangular concrete beam.
- e) Explain the effect of cold weather on the setting and hardening property of concrete.