Department of Civil Engineering
Concrete Technology
Question Bank

UNIT-I

1(a) How are super plasticizers classified? Explain in detail

(b) Write the oxide composition limits of OPC and explain their necessity.

2 Explain the field tests for cement and what do you conclude from them

3(a) What are BOGUE'S compounds. explain their contribute in developing the strength of concrete

(b) Write about the laboratory tests of cement. which test do you choose to find strength of cement in laboratory.explain

4 Explain any three laboratory tests for cement and what do you conclude from them

5(a) Classify the types of admixtures and write a short note on them

(b) List out various mineral admixtures and explain about them in detail

6(a) Explain in detail about segregation

(b) Explain in detail about Bleeding

7 List out various types of cements. Explain about any 4 of them in detail

8(a) What are different grades of cement and which is the best grade to choose for construction. Why

(b) Explain in detail about hydration and setting times of cement

9 Choose any two tests from the following and explain about them in detail 1.setting time 2.soundness 3. strength

10 Demonstrate the process of manufacturing of portland cement

11 What are the problems of delayed curing. What happens when unsound materials are used in concrete preparation. Explain

12 Identify the influence of fly ash, GGBS and silica fume on fresh concrete

UNIT-II

1(a) Explain alkali aggregate reaction

(b) What are the factors prompting to alkali aggregate reaction. Explain any 2 of them in detail

2 How do you classify aggregates. Also explain the source from which they are derived

3(a) Explain soundness of aggregate

(b) Explain alkali aggregate reaction

4 Explain in detail about strength, bulk density and specific gravity of aggregate

5 Analyze the thermal properties of aggregate

6 Identify various ways in obtaining a good mix related to aggregates

7 Identify various tests on aggregates and explain about them in detail

8 Analyze the grading of aggregates

9 Identify various mechanical properties of aggregates and explain any 3 of them in detail

10(a) Identify the effects of absorption and moisture content of aggregates

(b) How do you control alkali aggregate reaction

11 How do you select a good aggregate and what are the factors to be examined during their selection

12 List various properties of aggregates and explain any three of them in detail

UNIT-III

1 Distinguish between segregation and bleeding and explain in detail

2 List out the methods for transporting concrete and xplain any 2 in detail

3(a) Explain workability

(b) Identify various factors affecting workability

4 List out various tests for the measurement of workability and explain any 2 in detail

5(a) Explain the setting time of concrete

How many zones of sand are available as per Indian standards and identify which zone

(b) is coarsest and which finest

6(a) Explain slump test

(b) Explain compacting factor test

7 How do you organize various workability factors of concrete in such a manner to get a good mix

8 Explain flow table test in detail

9 Explain batching and what are the types of batching

10 Explain the concept of mixing in the production of concrete

11 List the tests on fresh concrete and explain any 2 of them in detail

12 Write a detailed note on the effect of segregation and bleeding

UNIT-IV

1(a) Explain the relation between compression and tensile strength.

(b) analyze the importance of curing and explain different types of curing

2 Explain about water-cement ratio and Abram's law.

3 List out different NDT methods? Write codal provisions for NDT

4 Identify the factors affecting the strength of concrete.

5(a) explain about gel space ratio and gain of strength of concrete with age?

(b) explain about accelerated curing test

6 How is maturity concept of concrete developed

7 Write the testing procedure of determination of flexural strength.

8(a) Write the testing procedure of determination of split tensile strength.

(b) Define shrinkage of concrete

9 Analyze the importance of curing and explain the different methods of curing

10(a) Explain gel-space ratio.

(b) Identify the role of water cement ratio in concrete

11 Analyze various tests done on hardened concrete

12 List the various codal provisions of NDT

UNIT-V

1(a) Examine the factors affecting modulus of elasticity?

(b) analyze the classification of shrinkage

2 Define creep and explain how creep is measured and also list the factors influencing creep.

3(a) Define shrinkage. Write in detail the classify types of shrinkage.

(b) Analyze about the thermal properties of concrete.

4 Explain procedure for determining dynamic modulus of elasticity using Ultrasonic pulse velocity

5(a) Analyze about elastic properties of concrete.

(b) Identify relation between creep and time? What is the effect of creep on concrete?

6 Identify the relation between modulus of elasticity and strength

7 Define creep and explain how creep is measured?

8(a) What is the relation between modulus of elasticity and strength? Explain

(b) Explain dynamic modulus of elasticity.

9 Explain about elasticity, creep and shrinkage

10(a) What are the factors affecting modulus of elasticity?

(b) Explain in detail the classification of shrinkage

11 Analyze the elastic properties of concrete.

12 Define creep of concrete. Explain the factors influencing creep, relation between creep and time and effect of creep.

UNIT-VI

1 Design a concrete mix of M25 grade. Take standard deviation of 5MPa. The specific gravities of coarse aggregate and fine aggregate are 2.75 and 2.60 respectively. The bulk density of coarse aggegate is 1610kg/cu.m and fineness modulus of fine aggregate is 2.72. Design the concrete mix using IS code method. Assume any missing data suitably

2 Design a concrete mix of M30 grade. Take a standard deviation of 5MPa. The specificgravities of coarse aggregate and fine aggregate are 2.8 and 2.7 respectively. The bulkdensity of coarse aggregate is 1600 kg/m3 and fineness modulus of fine aggregate is 2.70.A slump of 60mm is necessary. The water absorption of coarse aggregate is 2% and free moisture in fine aggregate is 1%.Design the mix by using IS code method

3 Design a concrete mix of M35 grade. Take a standard deviation of 5MPa. Thespecific gravities of coarse aggregate and fine aggregate are 2.8 and 2.7 respectively.The bulk density of coarse aggregate is 1600 kg/m3 and fineness modulus of fineaggregate is 2.70. A slump of 60mm is necessary. The water absorption of coarseaggregate is 2% and free moisture in fine aggregate is 1%.Design the mix by using IScode method.

4 Design a concrete mix of M40 grade. Take a standard deviation of 5MPa.Thespecific gravities of coarse aggregate and fine aggregate are 2.85 and 2.75respectively. The bulk density of coarse aggregate is 1600 kg/m3 and fineness modulusof fine aggregate is 2.70. A slump of 60mm is necessary. The water absorption of coarse aggregate is 2% and free moisture in fine aggregate is 1%. Design the mix byusing IS code method.

5 Design a concrete mix of M45 grade. Take a standard deviation of 5MPa. The specificgravities of coarse aggregate and fine aggregate are 2.85 and 2.75 respectively. The bulkdensity of coarse aggregate is 1600 kg/m3 and fineness modulus of fine aggregate is 2.70. Aslump of 60mm is necessary. The water absorption of coarse aggregate is 2% and freemoisture in fine aggregate is 1%.Design the mix by using IS code method

6(a) Explain the design steps of a mix design by IS code method.

6(b) Explain the quality control of concrete?

7 Of durability of concrete and factors to be considered in choice of mix proportions

8 Why were self compacting concrete and fiber reinforced concrete developed

9 Design a concrete mix of M25 grade. Take standard deviation of 4MPa. The specific gravities of coarse aggregate and fine aggregate are 2.72 and 2.60respectively. The bulk density of coarse aggregate is 1610 kg/m3 and fineness modulus of aggregate is 2.74.A slump of 60mm is necessary The water absorption of coarse aggregate is 1% and free moisture in fine aggregate is 2%Design the concrete mix using IS code method. Assume any missing data if any

10 Explain in detail about self compacting concrete and fibre reinforced concrete

11 How do you develop proportioning of concrete mixes by BIS method of mix design

12(a) Explain what is mix design and its practical necessity

(b) Explain statistical quality control of concrete. Explain common terminology usedin statistical evaluation of concrete