

## List of Particles

- 1) Determination of Fineness of cement.
- 2) Determination of standard consistency of cement.
- 3) Determination Initial setting time and final setting time for cement.
- 4) Determination of soundness of cement by Le-chatelier apparatus.
- 5) Determination of compressive strength of cement.
- 6) Determination of Bulking of fine Aggregate.
- 7) Determination of Workability of cement concrete by Slump Test.
- 8) Determination of Workability of cement concrete by Compaction factor Test.
- 9) Determination of compressive strength of cement concrete.

## VIVA-VOCE Question Bank

### Practical 1, 2, 3, 4,& 6 Combined question bank

Explain the following:

- 1) Ingredients of Cement
- 2) Chemical composition of cement
- 3) Initial and final setting time of cement
- 4) Heat of hydration
- 5) Fineness of cement
- 6) Properties of ordinary Portland cement
- 9) Differentiate between flash set and false set of cement.
- 11) Why is it necessary to test cement for soundness? Name the tests to determine soundness of cement.
- 12) Portland pozzolana cement,
- 13) Blast furnace slag cement
- 14) High alumina cement
- 15) Hydrophobic cement
- 16) Storage of cement
- 17) Classification of aggregates
- 18) Characteristics of aggregates
- 19) Soundness of aggregate
- 20) Alkali- aggregate reaction
- 21) Fineness modulus of aggregate
- 22) Gap graded and well graded aggregate
- 23) Test for determining the specific gravity of coarse aggregate
- 24) Requirements of coarse aggregate used in concrete
- 25) Effect of size and shape of coarse aggregate in concrete mix
- 26) Bulking of fine aggregate
- 27) Quality requirement of water for concrete
- 28) Effect of impurities in water on properties of concrete
- 29) Functions of admixtures
- 30) Classification of admixtures

### **Practical 5, 7, 8, & 9 Combined question bank**

- 1) Role of water in fresh state of concrete
- 2) Significance of workability of concrete
- 3) Importance of w/c ratio in concrete
- 4) Requirements of workability for various work
- 5) Segregation and bleeding
- 6) Effects of bleeding of concrete
- 7) The conditions results in segregation.
- 8) List the various methods of mixing of concrete
- 9) List the various types of concrete mixers
- 10) List the various methods of placing of concrete
- 11) List the various methods of compacting of concrete
- 12) List the various methods of transporting of concrete
- 13) List the various methods of finishing of concrete
- 14) List the various methods of curing of concrete
- 15) Underwater concreting
- 16) Weigh Batching
- 17) Batching Plant
- 19) Joints in concreting
- 20) Functions of formwork
- 21) Materials used for formwork
- 22) Ferro-cement
- 23) Fibre reinforced concrete
- 24) Ready mix concrete
- 25) Light weight concrete
- 26) Lightweight aggregate concrete
- 27) Cellular concrete
- 28) No fines concrete
- 29) Aerated concrete
- 30) Steel fibre shotcrete (SFSC)
- 31) Polymer concrete
- 32) Polymer impregnated concrete (PIC)
- 33) High strength concrete

### **Practical 5 & 9 Additional Questions**

1. Compare cube and cylinder compressive strength of concrete.
2. Tensile strength of concrete
3. List the various tests for assessing the performance of hardened concrete
4. Stress-strain relationship of concrete
5. Creep and shrinkage of concrete
6. Factors influencing the strength of concrete
7. Factors affecting durability of concrete
8. Effect of creep on strength of concrete
9. Effect of shrinkage on strength of concrete
10. Permeability of concrete
11. Effect of air entrainment in concrete

12. Effect of temperature on strength of concrete
13. Rebound Hammer Test
14. Ultrasonic pulse velocity testing
15. Importance of quality control
16. Proportioning of concrete mixes
17. Factors influencing the choice of mix proportions
18. Factors causing variation in the quality of concrete
19. Importance of trial mixes

### **General Questions on Concrete Technology Subjects practical**

- 1) Describe the various types of cement and their applications
- 2) Explain the various IS tests for cement.
- 3) Describe the IS tests for determining the initial and final setting time of cement and specify the IS specification for the same.
- 4) Describe the IS test for determining the fineness of cement. Write down the IS specification for fineness of OPC.
- 5) Explain the process of hydration of cement.
- 6) Explain the classification and characteristics of aggregate.
- 7) Discuss any five tests for aggregates as per IS specification
- 8) List the different tests for coarse aggregate and give the details of aggregate crushing value test.
- 9) Explain the effect of impurities in water on properties of concrete.
- 10) What are the uses of admixtures in concrete
- 11) Explain the classification and functions of admixtures
- 12) Discuss the factors influencing the dosage of admixtures.

### **General Questions on Fresh Concrete**

- 1) What is workability of concrete? Discuss the factors affecting workability of concrete.
- 2) What is the role of water in fresh concrete? Explain the significance of w/c ratio.
- 3) Discuss the factors affecting workability of concrete. Describe the field method for assessing the workability.
- 4) Explain any two tests for determining the workability of concrete and discuss their limitations.
- 5) Differentiate between bleeding and segregation. Explain their effects on concrete.
- 6) Explain the various methods of curing of concrete
- 7) Describe the various methods of mixing of concrete
- 8) Discuss the various types of concrete mixers
- 9) Discuss the various methods of placing of concrete
- 10) Explain the various methods of compacting of concrete
- 11) Discuss the various methods of transporting of concrete
- 12) Enumerate the various methods of finishing of concrete
- 13) Why is vibrator required in concreting? Discuss the various types of vibrators used in concreting
- 14) Discuss the various methods of curing of concrete
- 15) Explain how lightweight concrete and aerated concrete are prepared and their applications.
- 16) Explain the advantages and applications of lightweight concrete (LWC).
- 17) Explain the concept of composite material and its advantages. Describe the two composite

materials – FRC and ferrocement.

18) Explain the behavior of steel fiber reinforced concrete (SFRC).)

19) Discuss the functions of formwork and the materials used.

20) Discuss the various materials used for formwork and list the requirements of a good formwork.

21) Explain the general principle of formwork design. Sketch the formwork details for a square column and a circular column

## CONCRETE TECHNOLOGY

### VIVA-VOCE

1. List out all the field tests and lab tests for cement.
2. How will you differentiate the normal consistency over the standard one for a cement sample?
3. Which apparatus used for determining the consistency of cement?
4. Define Normal Consistency of cement.
5. If 'P' is the standard consistency for the given cement then given the quantities of water required for
  - i) Setting time test =
  - ii) Soundness test by Le-chatelier method =
  - iii) Compressive strength test for 1:3 cement and sand =
6. Define setting of cement.
7. Which Bogue's compounds are highly responsible for setting of cement?
8. Define Initial setting time and final setting time for cement.
9. What is soundness of cement?
10. State the reasons for unsoundness of cement.
11. Brief the Le-chatelier apparatus along with its limitation
12. What is the significance of conducting fineness test of cement
13. State the methods to test the fineness of cement
14. Explain the role of gypsum for cement
15. Standard size of cube for cement mortar (1:3) is \_\_\_\_\_
16. Give the sequence of process in the preparation of concrete
17. Define Flakiness index.
18. Define Elongation index.
19. What is the angularity index?
20. State the significance of carrying shape test for aggregates.
21. What thickness gauge size and length gauge size indicates? Explain with an example.
22. Explain in steps, procedure for finding the specific gravity and water absorption of aggregates of size 10mm.
23. Which volumes of cylindrical measures used to calculate the bulk density? How they differentiate on the basis of size of aggregates?
24. What are the strength test for aggregates and concrete?
25. Define abrasion, attrition and erosion.
26. How will you define air dry, surface dry and moist aggregates?
27. What fineness modulus (F.M.) indicates ? Explain with giving an example.
28. Give the sets of IS sieves in sequence from coarser to finer for coarse aggregates.

29. Why we perform the Impact test for aggregates?
30. Write down the formula for finding the impact value for given sample of aggregates.
31. State the significance of slump test.
32. Name the test to determine the moisture content of aggregates.
33. Explain the procedure for conducting the aggregate's impact value test.
34. Define Workability.
35. Name the field tests for measuring the workability of fresh concrete.
36. How will you compare the slump cone and compacting factor test? Which is most suitable, why?
37. Compacting factor =
38. Slump of 25 mm indicates \_\_\_\_\_
39. How will you measure the slump?
40. State the different types of slump and its practical importance.
41. Sketch and write the detail features of slump cone.
42. Which machine use for measuring the compressive strength of concrete cube?
43. Give the standard size of cube mould for concrete comp. strength.
44. The compressive strength of 100mm cube made up by cement mortar as compared to 150mm cube is always less/more/equal (tick correct answer)
45. Name the basic tools used in CT lab while performing practicals.
46. Collect the current price for different ingredients of concrete (i.e. cement, sand, fibres, flyash, bricks, coarse aggregates(sizewise) )
47. Steps the procedure for Slump test, specific gravity, impact value, flakiness and elongation index.
48. State the raw ingredients of cement.
49. What are the oxide compositions in cement? Give two properties of each compound.
50. 53 grade of cement, what it indicates?
51. For M20, mix 1:2:4 what it means.....
  52. Name different types, grades and brands of cement available in the market.