

CE 6506 CONSTRUCTION TECHNIQUES, EQUIPMENTS AND PRACTICES

UNIT 1

CONCRETE TECHNOLOGY

Part – A

1. List the various methods of mix design.
2. Name some methods of non-destructive testing of concrete.
3. What is the use of chemicals as retarders in concrete?
4. What are the tests available for fresh concrete as per Indian Code of Standards?
5. What does the grade of cement denote?
6. What are the raw materials used in the manufacture of cement?
7. List the various processes involved in the manufacture of concrete.
8. Define hydration of cement.
9. Write the ASTM classification of cement.
10. Differentiate dry and wet process of manufacturing of cement.
11. Define batching. What are the methods of batching?
12. Write notes on steam curing.
13. Define non destructive testing.
14. Write the requirement of supervision needed while concreting.
15. Write the uses of Rapid Hardening cement.
16. What is Sulphate Resisting cement.
17. Mention the grades of cement.
18. What are the equipments needed for transporting the concrete?
19. Define RMC.
20. Define Hot weather concreting.

Part – B

1. Explain the various steps involved in the manufacture of concrete.
2. Explain any two tests for testing of fresh concrete.
3. What is meant by Non destructive Testing? Explain any one method in detail.
4. What are the factors to be considered for mix design? Explain the step by step procedure for IS method?
5. What are concrete chemicals? Explain in detail and discuss their uses.
6. Describe the processes in the manufacture of Ordinary Portland Cement.
7. Explain ACI method of mix design.
8. Explain the procedure for compression test on concrete.
9. Explain in detail the different types of curing of concrete.
10. Write in detail about RMC?

Unit – 2

CONSTRUCTION PRACTICES

Part – A

1. Mention the significance of bond in masonry structures.
2. Define scaffolding.
3. State the main purpose of providing DPC in buildings.
4. Mention the advantages of slipforms.
5. What is the necessity of providing construction joints.
6. Write the common sizes of concrete hollow blocks used in buildings.
7. How are steel trusses fabricated and grouped?
8. Define slipforms.
9. What are the steps involved in site clearance?
10. Define the term masonry.
11. Differentiate English bond and Flemish bond.
12. Define scaffolding.
13. What are the types of scaffolding?
14. What is composite masonry?
15. What is ashlar masonry?
16. Write about zig – zag bond?
17. Define dampness.
18. What are the causes of dampness?
19. What are the types of damp proofing courses?
20. Write about centering.

Part – B

1. Explain the different types of stone masonry with neat sketches.
2. Describe in detail the construction practices to be followed for acoustics and fire protection.
3. What are the methods of providing DPC? What are the requirements of an ideal material for Damp proofing?
4. Describe the different types of bonds in brick masonry with sketches.
5. Explain the different types of joints in buildings with sketches.
6. Write notes on DPC and requirements and conditions of good acoustics.
7. What is scaffolding? Mention its various components and types.
8. Explain the various types of flooring with neat sketches.
9. Explain the various types of trusses with neat sketches.
10. Explain the various types of roof finishes with neat sketches.

Unit – 3

SUBSTRUCTURE CONSTRUCTION

Part – A

1. State the use of Box jacking.
2. What are sheet piles?
3. What are box caissons? Where do we use it?
4. Name some equipments used for underground open excavation.
5. What are coffer dams?
6. Give any 4 types of piling techniques.
7. What are the various methods to dewater deep excavations?
8. Define caissons. Mention its types.
9. Differentiate box jacking and pipe jacking.
10. What are the techniques adopted for tunneling?
11. Mention the different types of coffer dams.
12. What is well foundation?
13. Write about sheet piles?
14. Define well point.
15. Define anchoring.
16. Define dewatering.
17. Write about under water construction of diaphragm walls.
18. Define box jacking.
19. What is grouting?
20. What is cable anchoring?

Part – B

1. Describe the procedure involved in underwater construction of diaphragm walls and basement.
2. What are caissons and cofferdams? Explain the method of sinking cofferdams with neat sketches.
3. What is a coffer dam? With the help of sketches explain the types of coffer dams.
4. Explain the the types of shores in detail.
5. Explain the procedure involved in tunneling techniques.
6. Explain the process of dewatering and the uses of standby equipment for underground open excavation.
7. Explain with sketches about sheet piles and well points.
8. Explain the methods of piling.
9. Explain the various types of sheet piles.
10. Write the operation procedure for caissons.

Unit – 4

SUPER STRUCTURE CONSTRUCTION

Part – A

1. Mention the reasons for using special forms for shells.
2. What are the precautions to be taken while erecting light weight components on tall structures?
3. Define articulated structures.
4. What is an offshore platform?
5. What are erection stresses
6. What are the situations in which articulated structures can be used?
7. Define braced domes.
8. Define bridge decks.
9. What are the types of offshore platforms?
10. Define sky scrapers.
11. What is prestressed concrete?
12. What are the major techniques adopted for heavy decks?
13. Mention the light weight components of tall structures.
14. Define support structures.
15. Give the uses of silos.
16. What are the types of cooling towers?
17. What is a transmission tower?
18. Write the classification of bridges.

Part – B

1. Discuss the various techniques used for construction of heavy decks.
2. Explain about the support structures required for heavy equipments and conveyors.
3. Explain special forms for shells in detail.
4. Discuss the process of insitu prestressing in high rise structures.
5. Explain the procedure involved in erection of braced domes and space decks.
6. What are the advantages of using belt conveyors for transporting materials? Describe the construction of a typical belt conveyor installation.
7. Explain the general requirements in launching girders.
8. Explain about shell roof structures.
9. Write about material handling in detail.
10. Write the procedure for erecting heavy decks.

Unit – 5

CONSTRUCTION EQUIPMENT

Part –A

1. Give a list of equipments needed in the construction of tall structures.
2. What are the equipments needed for tunneling and trenching.
3. Name the types of earthwork equipment.
4. Define dredging.
5. What is pile driving?
6. Name the equipments needed for compacting concrete.
7. What are the operations performed by motor grader?
8. What are the major earth moving operations?
9. Define tractors.
10. Define scrapers.
11. What are the parts of a motor grader?
12. What are the operations conducted with the help of a tractor?
13. Write short notes on earth movers.
14. What are the various forms of earth movers?
15. Differentiate between single acting and double acting hammer.
16. Write about pile driving equipment.
17. What is TBM?
18. Write the parts of a scraper.
19. What is the need of equipment management in site?
20. How can scrapers help in increasing speed of construction?

Part – B

1. Explain in detail the various equipment used for compaction, batching and mixing of concrete.
2. Explain about Earth movers and equipment used for erection of structures.
3. Explain the various equipment for pile driving.
4. Explain the equipment used for tunneling.
5. Explain pile driving in detail.
6. Explain the factors involved in selection of equipment for earthwork.
7. Mention the various types of earthwork equipment. Mention their uses.
8. Discuss the role of tractors in earth moving. What considerations govern the selection of wheel type or crawler type tractor on a job? Compare their applications.
9. Describe the working principle of diesel hammer and state its limitations.
10. Write notes on equipment for erection of structures.