VALLIAMMAI ENGINEERING COLLEGE

KATTANKULATHUR

ST7016-PREFABRICATED STRUCTURES

QUESTION BANK

Prepared by

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UNIT –I

2 Marks

1. What is meant by modular co–ordination ?
2. Distinguish between site prefabrication and plant prefabrication.
3. List the advantage and disadvantage of prefabricated structures
4. What is meant by prefabrication ?
5. What is meant by tolerance ?
6. What are the stresses during erection ?
7. What are the structural components for prefabrication ?
8. What is the difference between floor and a slab ?
9. What is a shear wall ?
10. What are the behaviors of structural components ?
11. What are materials used for prefabrication techniques ?
12. What are the IS codal provision ?
13. What are the safety factors to be considered ?
14. What are the types of shear wall ?
15. What are the various stages involved in prefabrication of structures ?
16. What are the different methods used in erection of prefabrication structures ?
17. What are the factors to be considered in disuniting the prefabricated structures ?
18. Define standardization
19. Write any two properties of material used in prefabricated structures
20. Write any two transportation method used for prefabricated structures

16 Marks

1. Discuss with sketches the concept of disuniting of structures in prefabrication.
2. Explain with sketches the cross sections of beams and columns used in precast construction.
3. How will you eliminate handling stresses while hoisting precast members?
4. Explain the different stages in construction prefabricating structures
5. Explain with the case study the problems arising due to improper handling of materials in prefabrication structures
6. Explain in detail about IS codal provision for prefabricated structures
7. Explain in detail with sketches the prefabrication system and their relative merits and field of application
8. Discuss in detail the various equipments used in the erection of prefabricated system
9. Explain in detail about the need for prefabrication with merits and demerits
10. Explain the need of modular coordination and standardization of prefabricated structures in detail.

UNIT – II

2 Marks

1. Sketch the joint between precast column and footing.
2. Distinguish between rigid joint and hinge joint with reference to prefabricated construction.
3. How will you make a rigid joint in connecting a precast column and beam?
4. What are connections ?
5. What are materials used for connection ?
6. What is joint deformation ?
7. What is meant by joint flexibility ?
8. What are the types of wall panels ?
9. What is long wall and cross wall panel building ?
10. What is one way prefabricated slabs ?
11. What is two way prefabricated slabs ?
12. Distinguish between one way and two way prefabricated slabs
13. What is framed buildings ?
14. What is partial walls ?
15. What is curtainwalls ?
16. Sketch beam to column connection
17. Sketch column to column connection
18. What is chamfers?
19. What are the different types of joints and connections?
20. What is the need for expansion joint?

16 Marks

1. Discuss the different reinforced concrete wall panels used in prefabricated construction.
2. With a neat sketch, explain an expansion joint used in precast construction.
3. Explain the merits and demerits of expansion joints?
4. What are the requirements of ideal structural joint? Explain different joints?
5. Explain with neat sketch about beam to column and column to foundation connection?
6. Explain the joint techniques and materials used for expansion joints in detail?
7. What are the essential requirements of joints in precast construction?
8. Explain in detail about long and cross wall large panel building
9. Explain one way and two way prefabricated slabs
10. Explain framed buildings with partial and curtain walls.

UNIT – III

2 Marks

1. Give the classification of floor slabs
2. Write short notes on hollow core floor slab.
3. Explain the term lift slab construction.
4. Explain joint deformation
5. Explain joint flexibility
6. What is the importance of joints in precast structures when compared to cast insitu structures?
7. How does the material used in construction affect the design of floor slabs?
8. Give the formula for shear strength of floor slabs.
9. List out the different types of joints in floor and roof slabs.
10. Give the maximum allowable deflection limit for roof slabs under short term loads.
11. List out the roofing members.
12. Write the dimensional tolerances.
13. Distinguish between rigid joint and hinged joint with reference to prefabricated construction.
14. What are the precast concrete design requirements?
15. Explain staircase system.
16. Define large panel systems.
17. Write a short notes on behavior of joints in floor and roof slabs.
18. What is panel types of floor slabs?
19. Give the codal recommendations for reinforcement with respect to reinforcement.
20. What is two way systems in floor slabs?

16 Marks

1. Explain the behavior of roof and floor slabs.
2. Explain in detail the manufacture of roof slabs. Also explain the precautions taken during the manufacturing process.
3. What are the recommendations for the design of staircase slab?
4. Give the requirements of insulation in roof slabs.
5. What are the reinforcement requirements of joints in precast construction?
6. Explain about Roofing members in detail.
7. Write the design procedure for cored and panel types of floor slabs.
8. Explain the types of joints in precast construction. Also explain its behavior.
9. Explain the design of two way systems in floor slabs.
10. Explain the methods of construction of roof and floor slabs.

UNIT – IV

2 Marks

1. What are the types of cross wall system?
2. Write briefly about types of wall panels?
3. Classify precast large panel?
4. What are the types of precast floors?
5. What is shear wall?
6. Classification of shear walls ?
7. Write the importance of shear wall?
8. Write a short note on sandwich panel
9. What are types of wall joints?
10. Types of sealants used ?
11. Short note on large panel construction in residential building
12. What are the factors associated with curtain walls?
13. Methods used for forming vertical joints
14. Write about the erection of wall panels
15. Write about architectural design of wall panel.

16 Marks

1. Write in detail about connections and joints for wall panels
2. Brief manufacture, transport and erection of wall panels
3. Write the structural design of load bearing wall panels
4. Write the structural design of curtain wall
5. Explain the stability of wall panels
6. What is the steps involved in the design of shear walls
7. Specify the general consideration for external wall construction
8. Explain about load transfer in wall panels

UNIT V

2 marks

1. Define precast battens.
2. Define solid purlin
3. What are the necessary informations for the efficient designs and construction of doubly curved shell units
4. Mention the type of prefab connections
5. What are the instability failure modes for prefabricated concrete shell structures
6. Define trussed purlin
7. What are the components for single storey industrial shed
8. Mention the loads acting on prefabricated structures
9. Define precast planks
10. Mention the uses of cylindrical prefabricated planks
11. Define cellular concrete
12. Define shear connectors
13. What are the characteristics for selecting the materials for prefabrication
14. What are the types of prefabrication components as per IS code
15. Mention the design codes for precast units
16. What are the types of prefabrication systems as per IS code
17. Mention some precasting methods
18. What is meant by accelerated hardening
19. Mention the techniques for accelerated hardening
20. Define modular grid.

16 marks

1. Write in detail about precasting methods
2. Briefly explain about the item of workdone in erection
3. Design requirements and consideration of prefab joints
4. Write in detail about installation of prefabricated elements
5. What are the design requirements of precast truss
6. Explain about hyper prefabricated shells
7. Design principles of wind bracing
8. Design criteria for precast L panels
9. Design requirements for precast structural planks
10. Design requirements for doubly curved shell units.