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Question Paper Code : 20245

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

Eighth Semester

Civil Engineering

CE 6016 — PREFABRICATED STRUCTURES

(Regulations 2013)

(Common to PTCE 6016 – Prefabricated Structures for B.E Part-Time – Seventh Semester – Civil Engineering – Regulations 2014)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the types of concrete preferred in prefabrication of structural elements?

2. What are the precautions to be taken will erecting a prefabricated element?

3. List the types of floors used in prefabrication.

4. List the types of shear walls commonly used in structures.

5. Why is joint flexibility important in prefabrication?

6. Draw the BMD of a beam in a H frame.

7. List the most commonly used methods for connection analysis.

8. Draw the connection between a base plate and a column.

9. Why is progressive collapse analysis important in prefabricated structures?

10. What are the codal provisions available to overcome Earthquake forces?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the role of micro fillers and high range water reducing admixtures in enhancing the durability of precast concrete members. (8)

(ii) Explain the importance of dimensional tolerances in prefabricated construction. (8)

Or

(b) (i) Explain how standardization is planned in prefabricated structures. (8)

(ii) Explain the requirements of a precast yard and explain in details about the various departments that are needed in the production yard. (8)

12. (a) Explain with neat sketches, the difference in structural behavior of a beam column joint in a prefabricated construction and conventional RC construction.

Or

(b) Explain with sketches, the procedure for carrying out a simplified frame analysis and compare the same with conventional frame analysis.

13. (a) How is the behavior of a non-composite beam different from the behavior of a composite beam? Draw the bending and shear stress distribution along depth in both the cases.

Or

(b) Find the joint flexibility of a precast a single bay single storey portal frame having hinges at the junction of beam and column and the base of the columns are fixed.

14. (a) List the methods by which a beam column connection is made moment resistant in a prefabricated construction. Explain any one method in detail.

Or

(b) What are the principles followed in the design of expansion joints in prefabricated structures? Explain with neat sketch the components of an expansion joint.

15. (a) Explain the procedure followed in structural analysis softwares to perform progressive collapse analysis. What are the general principles used to avoid progressive collapse in prefabricated structures?

Or

(b) What are the lateral load resisting systems used in the design of prefabricated structures? Explain with neat sketches the difference in BMD variation in a prefabricated structure subjected to gravity loads and lateral loads.