Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 50477

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2024

Fifth/Sixth Semester

Civil Engineering

CE 3003 – PREFABRICATED STRUCTURES

(Regulations 2021)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Mention the need for prefabrication.
2. List any four factors that influence standardization.
3. How is the sound insulation done in precast members?
4. Classify precast large panel systems.
5. Why should allowance be given for joint deformation?
6. Predict the design of cross section based on the efficiency of the material used.
7. Give the purpose of expansion joint in precast construction.
8. What are sealants?
9. Define progressive collapse.
10. Mention the causes of abnormal loads on a prefabricated structure.

PART B — (5 × 13 = 65 marks)

11. (a) Explain in detail the advantages and limitations of prefabrication.

Or

(b) (i) Discuss the materials used in precast technology for different types of industries. (6)

(ii) Explain the measures to be carried out before transportation of prefabricated structures. (7)

12. (a) Describe the types of prefabricated roof and wall panels with neat sketches.

Or

(b) Explain portal frame system and block system.

13. (a) Detail the erection principles of prefabricated members and the equipment for handling them with suitable sketches.

Or

(b) Detail the design principles for stacking of precast elements.

14. (a) Discuss the type of joints based on the action of forces in precast elements.

Or

(b) Discuss the following prefabricated element connection with a neat sketch.

(i) Beam to column (6)

(ii) Column to column (7)

15. (a) Explain the codal provisions to determine equivalent design loads while considering abnormal effects.

Or

(b) Explain the importance of avoidance of progressive collapse with a suitable example.

PART C — (1 × 15 = 15 marks)

16. (a) Discuss the purpose of construction of shear walls. Compare shear wall with conventional load bearing wall.

Or

(b) Elaborate on the problems in design of structural elements, due to joint flexibility.

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