

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code: R1103

B.E./B.Tech. DEGREE EXAMINATION, NOV 2025

Professional Elective

R21CEV103 - PREFABRICATED STRUCTURES

Civil Engineering

(Regulations R2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Mention any two advantages of prefabricated components. CO1-U
2. List any two types of foundations used in prefabricated structures. CO1-U
3. What is the importance of prestressing in roof members? CO1-U
4. List two types of floor systems in prefabricated structures. CO1-U
5. Define allowance for joint deformation. CO1-U
6. Mention any two types of joints in precast structures. CO1-U
7. What is meant by dimensional tolerance? CO1-U
8. List two functions of shuttering in prefabrication. CO1-U
9. Mention two code provisions related to prefabrication. CO1-U
10. State two applications of prefabricated units in industrial structures. CO1-U
Define prefabricated water tanks.

PART – B (5 x 16= 80 Marks)

11. (a) Examine the role of standardization in reducing construction cost and time, using examples from prefabricated projects. CO1– U (16)

Or

- (b) Summarize the applications of prestressed concrete in prefabricated water tanks and explain how it enhances durability. CO1– U (16)

12. (a) Differentiate between various floor systems in prefabricated buildings and justify the most suitable one for a multi-storeyed office building. CO3–Ana (16)
- Or
- (b) Examine practical methods to reduce handling and erection stresses in long-span precast girders, supporting your answer with real examples. CO3– Ana (16)
13. (a) Assess the role of expansion joints in long-span prefabricated bridges and recommend optimal spacing for them. CO3–Ana (16)
- Or
- (b) Investigate the detailing challenges faced in expansion joints of multi-storeyed prefabricated buildings and suggest preventive measures. CO4-Ana (16)
14. (a) Diagnose common causes of erection failures in total prefabricated buildings and suggest preventive measures with practical problem. CO4-Ana (16)
- Or
- (b) Illustrate how improper organization of production and storage affects the quality and safety of precast components during erection. CO3-Ana (16)
15. (a) Demonstrate design principles by preparing sketches and layout for a prefabricated industrial warehouse and justify its load-resisting system. CO4 -Ana (16)
- Or
- (b) Appraise codal requirements for progressive collapse resistance in prefabricated frames and suggest suitable design checks. CO4 -Ana (16)