A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: U1206

B.E. / B.Tech DEGREE EXAMINATION, APRIL 2024

Professional Elective

Civil Engineering

21CEV206 - ADVANCED CONSTRUCTION TECHNIQUES

(Regulations 2021)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Which of the following is typically NOT a component of the substructure? CO1 -U

   (a) Footings (b) Columns (c) Roof trusses (d) Piers

2. Substructure construction typically involves the use of materials such as: CO1 -U

   (a) Windows and doors (b) Roofing shingles

   (c) Concrete and steel (d) Interior paint

3. Vacuum dewatering helps in reducing which common issue in concrete floors? CO2 -U

   (a) Cracking (b) Erosion (c) Scaling (d) Curing

4. What is a common concern during the construction of tall structures in seismic-prone areas? CO2 -U

   (a) Roof design (b) Fire safety (c) Earthquake resistance (d) Wind resistance

5. Which of the following is an example of a special structure? CO3 -U

   (a) A typical suburban shopping mall (b) A suspension bridge

   (c) A city park with recreational facilities (d) A standard industrial warehouse

6. Silos are commonly used for the storage of which materials? CO3 -U

   (a) Liquid chemicals (b) Grains, seeds, or bulk solids

   (c) Electrical components (d) Construction equipment

7. What is the primary purpose of external post-tensioning in structural strengthening? CO4 -U

(a) To reduce the load-bearing capacity of the structure

(b) To increase the susceptibility to earthquakes

(c) To enhance the structural capacity and performance

(d) To weaken the structure

8. Which type of material is commonly used in the externally bonded reinforcement technique for strengthening structures? CO4 -U

(a) Wood (b) Plastic (c) Fiber-reinforced polymers (FRP) (d) Glass

9. Which of the following is NOT a common method used in building demolition? CO5 -U

(a) Implosion (b) Wrecking ball (c) Controlled collapse (d) Elevation

10. Which environmental consideration is important during building demolition? CO5 -U

(a) Maximizing energy consumption (b) Minimizing noise pollution

(c) Increasing air pollution (d) Using hazardous materials extensively

PART – B (5 x 2= 10 Marks)

11. What are the different types of foundations used in substructure construction? CO1 –U

12. Why is the handling and erecting of lightweight components on tall structures important? CO2 –U

13. What is the typical construction sequence for cooling towers? CO3 –U

14. Why is sub grade waterproofing important in construction? CO4 –U

15. What is implosion demolition, and when is it used? CO5 –U

PART – C (5 x 16= 80 Marks)

16. (a) How the diaphragm walls been constructed underwater? Explain with neat sketch. CO1 -U (16)

Or

(b) How the dewatering of open excavation done? Explain in Detail. CO1 -U (16)

17. (a) Elaborate on various Techniques of construction for continuous concreting operation in tall buildings CO2 -U (16)

Or

(b) Elaborate on Post Tensioning of Slab. CO2 -U (16)

18.	(a)	Explain the two distinct type of bridge design in detail.	CO3 -U	(16)
		Or		
	(b)	Describe in detail about Construction sequence and methods in domes.	CO3 -U	(16)
19.	(a)	Elaborate on various techniques used for foundation repair and stabilization.	CO4 -U	(16)
		Or		
	(b)	How would you strengthen a slab? Explain various common methods.	CO4-U	(16)
20.	(a)	What are the safety precautions to be considered in Demolition and Dismantling?	CO5 -U	(16)
		Or		
	(b)	Explain the different methods of strengthening the concrete structures against earthquake.	CO5 -U	(16)