QP Code: RA22BTECH413 | Reg. No | | | | | | | | | | | AR 21/22

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

B. Tech (Sixth Semester – Regular/ Supplementary) Examinations, April 2025

21BCVPE36011/22BCVPE36011 – Advanced Concrete Technology

(Civil Engineering)

Time: 3 hrs | Maximum: 70 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Define workability. What are the factors affecting it?	CO1	K2
b. What is the difference between high strength and high-performance concrete?	CO2	K2
c. List the objectives of mix design.	CO3	K2
d. Explain how mineral admixtures influence durability.	CO4	K3
e. What are the causes and effects of plastic shrinkage cracking?	CO5	K2

PART – B **(15 x 4 = 60 Marks)**

Answer ***All*** the questions	Marks	CO #	Blooms Level
2. a. Define cement and explain its composition and types.	8	CO1	K3
b. What are bogus compounds? Explain their effects on concrete properties.	7	CO1	K3
(OR)			
c. What is alkali-silica reaction? How does it affect concrete?	8	CO1	K3
d. Compare chemical and mineral admixtures with examples.	7	CO1	K2
3.a. State and explain Abrams' water-cement ratio law.	8	CO2	K2
b. What is gel-space ratio? How does it affect concrete strength?	7	CO2	K3
(OR)			
c. Define creep and shrinkage. How do they affect structural performance?	8	CO2	K2
d. List and explain various durability tests for concrete.	7	CO2	K2
4.a. Explain the step-by-step procedure for mix design as per IS 10262.	8	CO3	K3
b. What is Ultra High Strength Concrete? Explain its uses.	7	CO3	K2
(OR)			
c. What is Polymer Concrete? Explain its composition and applications.	8	CO3	K2
d. Describe Fibre Reinforced Concrete and its performance characteristics.	7	CO3	K2
5.a. Discuss causes, prevention, and control measures of various concrete cracks.	8	CO4	K3
b. Define quality control, quality assurance, and quality audit in concrete works.	7	CO4	K2
(OR)			
c. Explain the requirements of good formwork. What are the factors to be considered in formwork design?	8	CO4	K3
d. Describe the various types of formwork materials and discuss their advantages and limitations.	7	CO4	K2

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