

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIFTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), DECEMBER 2019

Course Code: CE361

Course Name: ADVANCED CONCRETE TECHNOLOGY

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

Marks

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|---|--|------|
| 1 | a) Explain in detail any three tests for cement. | (9) |
| | b) What are light weight aggregates? Discuss any two uses of them with examples. | (3) |
| | c) Explain segregation and bleeding in concrete. | (3) |
| 2 | a) Discuss the hydration reaction of different cement compounds. | (10) |
| | b) What is meant by batching of concrete? What are the different types? Which one is better and why? | (5) |
| 3 | a) List the different types of cement. | (4) |
| | b) Mention the classification of aggregate in accordance with size and source. | (8) |
| | c) What are blended cement? State its advantages. | (3) |

PART B

Answer any two full questions, each carries 15 marks.

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| 4 | a) What are the effects of creep on concrete? | (4) |
| | b) Draw the typical stress strain curve for concrete. Explain how to determine the various elastic moduli for concrete. | (6) |
| | c) State the physical and chemical characteristics of GGBS (Ground Granulated Blast Furnace Slag). | (5) |
| 5 | a) Discuss the step-by-step procedure of ACI method of concrete mix design. | (12) |
| | b) What is the significance of compressive strength of concrete? | (3) |
| 6 | a) List three mineral admixtures along with their advantages. | (6) |
| | b) Explain the procedure for determining the flexural strength of concrete under | (6) |

four point bending test.

- c) Differentiate between creep and shrinkage in concrete. (3)

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) What is meant by reinforcement cover? How it is measured? (5)
- b) Explain any two methods for testing fresh stage properties of self-compacting concrete. (7)
- c) Discuss in brief the mechanism of chloride induced corrosion of steel and its control. (8)
- 8 a) Explain in detail the types of polymer concrete highlighting its composition, properties and applications. (10)
- b) What is carbonation of concrete? Explain the factors affecting carbonation of concrete. (6)
- c) Explain the pull-out test on concrete. (4)
- 9 a) Write notes on under water concreting and mass concreting. (10)
- b) What are the factors affecting durability? (4)
- c) Discuss in detail the manufacture of roller compacted concrete. What are its applications? (6)
