

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIFTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2017

Course Code: CE361

Course Name: ADVANCED CONCRETE TECHNOLOGY (CE)

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

- | | | Marks |
|---|--|-------|
| 1 | a) Explain the classification of aggregates. | (5) |
| | b) List the advantages and disadvantages of artificial aggregates. | (5) |
| | c) Explain segregation and bleeding in concrete. | (5) |
| 2 | a) What are the effects of properties of aggregate on concrete? | (5) |
| | b) In hot weather condition blended cements are advised for construction. Justify the statement. | (4) |
| | c) Why admixtures used in Concrete? What are the different types of Chemical admixtures? | (6) |
| 3 | a) Explain the chemical and physical process of hydration. | (8) |
| | b) Explain the process of concreting. | (4) |
| | c) Properly manufactured M Sand is superior to river sand. Justify the statement. | (3) |

PART B

Answer any two full questions, each carries 15 marks.

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|---|--|-----|
| 4 | a) Explain any one method of proportioning of concrete. | (8) |
| | b) Differentiate between compressive strength and characteristic compressive strength. | (3) |
| | c) Define Creep. What are the factors affecting creep? | (4) |
| 5 | a) Explain the procedure of determination of modulus of elasticity of concrete | (8) |
| | b) List different types of shrinkage. What are the factors affecting shrinkage | (4) |
| | c) What is the advantage of using silica fumes in manufacturing of concrete? | (3) |
| 6 | a) What is the importance of compressive strength, tensile strength and flexural strength in concrete? | (6) |
| | b) What are the effect of creep on concrete? | (3) |
| | c) List some mineral admixtures along with their advantages | (6) |

PART C

Answer any two full questions, each carries 20 marks.

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|---|---|-----|
| 7 | a) What are the factors affecting durability? | (6) |
| | b) What do you meant by self compacting concrete? What are its advantages? | (6) |
| | c) Explain any two non destructive tests in concrete. | (8) |
| 8 | a) Explain how can we reduce sulphate attack in concrete. | (6) |
| | b) What do you meant by reinforcement cover? How it is measured? | (6) |
| | c) Explain light weight concrete. How it is manufactured. What are its advantages | (8) |
| 9 | a) Explain alkali Silica reaction. Write notes on concrete in sea water. | (8) |
| | b) How roller compacted concrete is prepared? What are its applications? | (6) |
| | c) Write notes on under water concreting and mass concreting. | (6) |

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIFTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

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

- | | | |
|---|--|-----|
| 1 | a) Describe the various tests for determining the quality of aggregate to be used for concreting work. | (6) |
| | b) Describe the types of aggregate and explain the effects of aggregate on properties of concrete. | (4) |
| | c) Explain the production of artificial aggregate and write a note on blended cement. | (5) |
| 2 | a) What do you mean by hydration of cement. Write short notes on products of hydration. | (5) |
| | b) Explain the phenomenon of bleeding and segregation in concrete? | (6) |
| | c) Describe the various test for determining the properties of cement? | (4) |
| 3 | a) Explain the action of Plasticizers in concrete. | (5) |
| | b) What are admixture? How are admixtures classified? | (5) |
| | c) Explain the term workability and enumerate the various factors affecting workability? | (5) |

PART B

Answer any two full questions, each carries 15 marks

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|---|---|-----|
| 4 | a) Explain the term shrinkage in concrete. What are the different forms of shrinkage in concrete. | (5) |
| | b) Explain the term creep and shrinkage. What are the factors affecting these parameters? | (6) |
| | c) Briefly discuss about the elastic properties of concrete. | (4) |
| 5 | a) Describe the factors considered in mixture proportioning ?. | (4) |
| | b) Discuss the step by step procedure for mix design of ACI method. | (5) |
| | c) Write short note on various mineral admixtures. | (6) |
| 6 | a) Discuss the effect of rice-husk ash on properties of concrete. | (6) |
| | b) Explain the factors affecting the strength of concrete. | (5) |
| | c) Compare compressive strength results of cube with cylinder test on concrete. | (4) |

PART C

Answer any two full questions, each carries 20 marks

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|---|---|------|
| 7 | a) Explain the sulphate attack on concrete and explain the effect of sea water in concrete. | (6) |
| | b) Explain about statistical quality control of concrete. | (4) |
| | c) What is non-destructive testing of concrete? Discuss any four methods. | (10) |
| 8 | a) Explain Light weight concrete and high strength concrete. | (8) |
| | b) What are the factors which affecting the reinforcement corrosion? | (4) |
| | c) Explain fibre reinforced concrete and polymer concrete. | (8) |
| 9 | a) Explain under water concreting methods. | (6) |
| | b) Describe sprayed-concrete and mass-concrete. | (8) |
| | c) Explain the factors affecting durability. | (6) |

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
V SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

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 |
|----|---|-------|
| 1. | a) Explain the effect of super plasticizers on fresh and hardened concrete. | (5) |
| | b) Write a short note on artificial aggregates. | (5) |
| | c) What are the properties and uses of air entraining admixtures in concrete? | (5) |
| 2. | a) What is meant by bleeding of concrete and how can it be controlled? | (5) |
| | b) What is the effect of size and shape of aggregate in concrete? | (4) |
| | c) Explain the procedure for the determination of soundness of cement. | (6) |
| 3. | a) Explain the various methods for enhancing the workability of concrete. | (7) |
| | b) What are the properties of Bogue's compounds? | (4) |
| | c) What are the methods for sampling of aggregates? | (4) |

PART B

Answer any two full questions, each carries 15 marks.

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|----|---|-----|
| 4. | a) Describe the advantages of using mineral admixtures in concrete. | (6) |
| | b) With a neat figure, explain the stress-strain behaviour of concrete. | (4) |
| | c) What are the factors affecting strength of concrete? | (5) |
| 5. | a) Explain the influence of silica fume on fresh and hardened concrete. | (5) |
| | b) What is meant by shrinkage of concrete? Explain its different types. | (5) |
| | c) Explain the various factors affecting modulus of elasticity of concrete. | (5) |
| 6. | a) Write down the procedure for concrete mix design by BIS method. | (8) |
| | b) What are the objectives of concrete mix design? | (3) |
| | c) What is the effect of creep in concrete? | (4) |

PART C

Answer any two full questions, each carries 20 marks.

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|----|--|-----|
| 7. | a) Explain the factors affecting the measurement of ultrasonic pulse velocity. | (6) |
| | b) What are the factors affecting the properties of fibre reinforced concrete? | (6) |
| | c) What is sulphate attack in concrete? How is it controlled? | (8) |
| 8. | a) Write a short note on mass concrete and slip form construction. | (6) |
| | b) What are the advantages of prefabricated concrete? | (6) |
| | c) Explain Schmidt's rebound hammer test to assess the strength of concrete. | (8) |
| 9. | a) Explain various methods to test the fresh properties of self compacting concrete. | (6) |
| | b) Describe the effect of fire on concrete. | (6) |
| | c) Explain the composition, properties and uses of high strength concrete. | (8) |
