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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIFITH 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.

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.

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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Reg No.:_____ Name:_____

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

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

7	a)	Explain the sulphate attack on concrete and explain the effect of sea water in concrete.	(6)
	b)	Explain aboutstatistical quality control of concrete.	(4)
	c)	What is non-destructive testing of concrete? Discuss any four methods.	(10)
8	a)	Explain Light weight concrete andhigh strength concrete.	(8)
	b)	What are the factors which affecting the reinforcement corrosion?	(4)
	c)	Explain fibre reinforced concrete andpolymer 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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Reg No.:_____ Name:_____

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.

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.

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)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

V SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 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

1 a) What is gap graded aggregate? State the advantages of using gap graded aggregates in concrete construction. (4)

b) What are the various factors which affect the workability of concrete? Explain. (7)

c) Distinguish between plasticizers and super plasticizers. (4)

2 a) What is the role of chemical admixtures in concrete? Mention four types of chemical admixtures and their functions. (7)

b) Explain in detail the sampling methods for aggregates. (6)

c) What are the stages of transformation of fresh concrete to hardened concrete? (2)

3 a) What are the different components of hardened concrete? What is a transition zone? (6)

b) Explain the chemical composition, properties and uses of high alumina cement, quick setting and blast furnace slag cement. (9)

PART B

Answer any two full questions, each carries 15 marks.

4 a) Discuss on carbonation shrinkage. (5)

b) Why is cube strength more than cylinder strength in concrete? (4)

c) Discuss the factors to be considered in the design of concrete mixes. (6)

5 a) Discuss the step-by-step procedure of BIS method of concrete mix design. (15)

6 a) Describe the influence of mineral admixtures in concrete. Explain any two mineral admixtures in detail. (10)

b) Define creep. List the factors affecting creep. (5)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	Discuss the factors influencing the properties of fibre reinforced concrete.	(6)
	b)	Explain alkali silica reaction.	(6)
	c)	Explain any two non-destructive tests in concrete.	(8)
8	a)	Describe the causes of corrosion of steel in concrete.	(6)
	b)	Write a note on: a. Ready mixed concrete b. Mass concrete	(10)
	c)	State the advantages and limitations of UPV method.	(4)
9	a)	What is the influence of prefabrication technology on modern construction industry?	(10)
	b)	Describe the influence of various components of high strength concrete.	(10)

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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

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.

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 carries20 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)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth semester B.Tech degree examinations (S) September 2020

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 products of hydration.	(5)
	b)	List any3 characteristics of concrete aggregate and discuss their influence on properties of concrete.	(6)
	c)	Write a short note on blended cements.	(4)
2	a)	What are the objectives of curing of concrete? Explain any 2 methods of curing of concrete.	(6)
	b)	List the various methods for determining workability. Explain in detail any one method used in field to determine workability.	(5)
	c)	Explain segregation in concrete.	(4)
3	a)	Explain bulking and soundness of aggregate.	(5)
	b)	How is the grade of cement determined? Explain.	(4)
	c)	Write short notes on i) air entraining admixtures ii) plasticisers	(6)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	Explain maturity concept of concrete.	(3)
	b)	Explain the factors affecting creep.	(6)
	c)	Explain plastic shrinkage and drying shrinkage.	(6)
5	a)	Differentiate between design mix and nominal mix.	(3)
	b)	Explain the influence of silica fume on fresh and hardened concrete.	(6)
	c)	Explain the advantages of using mineral admixtures in concrete.	(6)
6	a)	Discuss the step by step procedure for mix design of ACI method.	(6)
	b)	Describe the elastic properties of concrete.	(6)
	c)	Explain effect of maximum size of aggregate on strength.	(3)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	Explain different methods of controlling sulphate attack.	(6)
	b)	Explain any 2 non destructive tests of concrete.	(10)
	c)	Describe alkali aggregate reaction.	(4)
8	a)	Explain factors affecting the properties of fibre reinforced concrete.	(6)
	b)	Explain underwater concrete and sprayed concrete.	(8)
	c)	Write short note on light weight concrete.	(6)
9	a)	Explain about the durability of concrete in sea water.	(8)
	b)	Write short notes on high strength concrete and ready mixed concrete.	(6)
	c)	Explain various methods for controlling corrosion in steel reinforcement.	(6)

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