Code No: R1622014 **R16** SET - 1

II B. Tech II Semester Regular/Supplementary Examinations, November - 2020

CONCRETE TECHNOLOGY

(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (Part-A and Part-B)
2. Answer ALL the question in Part-A
3. Answer any FOUR Questions from Part-B

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PART –A

1. a) What is sulphate attack? (2M)
   b) Mention the Effect of time and temperature on workability (3M)
   c) What is the affect of rate of loading on compressive strength of concrete (2M)
   d) Mention how the shrinkage of concrete is prevented (2M)
   e) List the factors considered in the concrete mix design (3M)
   f) What is aspect ratio of fiber and mention its affects on fresh properties of concrete (2M)

PART -B

2. a) Discuss about the different stages of hydration of cement (7M)
   b) Discuss about the different chemical admixtures and their functions (7M)

3. a) Discuss about the slump test to determine the workability of fresh concrete (7M)
   b) What is bleeding and explain method of Test for Bleeding of Concrete (7M)

4. a) Briefly discuss about the methods to assess tensile strength of concrete (7M)
   b) Discuss about the Factors Affecting Compressive Strength of concrete (7M)

5. a) What is creep and discuss about the Factors affecting Creep of concrete (7M)
   b) Explain in detail about the determination of Young's Modulus and Stress-strain curve for concrete. (7M)

6. Design a concrete mix of grade M40 for the following data as per IS:10262 (14M)
   The specific gravity of FA and C.A. are 2.67 and 2.75 respectively. The dry rodded bulk density of C.A. is 1600 kg/m^3, and fineness modulus of FA is 2.80. Ordinary Portland cement with specific gravity 3.06 to be used. A slump of 40 mm is required. water absorptive of C.A. is 1% and free surface moisture in sand is found to be 3 per cent. Type of work is RCC and SP is allowed. Assume any other suitable data if required.

7. a) Distinguish high strength and High performance concrete and their applications (7M)
   b) Discuss about the manufacture of light weight concrete and its application (7M)
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Code No: R1622014 **R16** SET - 1

II B. Tech II Semester Supplementary Examinations, February - 2022
CONCRETE TECHNOLOGY
(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (Part-A and Part-B)
2. Answer ALL the question in Part-A
3. Answer any FOUR Questions from Part-B

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PART –A

1. a) What is Alkali aggregate reaction? (2M)
b) Define segregation and bleeding of concrete. (3M)
c) What is the affect of aspect ratio of specimen on compressive strength of concrete? (2M)
d) What is short term and long term elastic modulus? (2M)
e) Discuss about the Acceptance criteria of concrete sample. (3M)
f) What is Shotcrete mention its applications? (2M)

PART -B

2. a) Discuss about the contribution of cement compounds towards strength development. (7M)
b) What is the importance of grading of aggregates and discuss about the test to determine fineness modulus of fine aggregate? (7M)

3. a) Discuss about the Factors Affecting Workability of fresh concrete. (7M)
b) Discuss about the compaction factor test to determine the workability of fresh concrete. (7M)

4. a) Mention the advantages and disadvantages of Non-destructive testing methods and discuss about the rebound hammer test to assess the strength of concrete. (7M)
b) Discuss any two tests carried out on the hardened concrete: (7M)

5. a) What is Shrinkage and explain about different types of shrinkage occurs in concrete? (7M)
b) Discuss about the static and dynamic modulus of elasticity of concrete. (7M)

6. Design a concrete mix for RCC construction. The specified characteristic strength is 25MPa at 28 days. Standard deviation can be taken as 4MPa. The specific gravity of FA and C.A. are 2.66 and 2.78 respectively. The dry rodded bulk density of C.A. is 1600 kg/m^3, and fineness modulus of FA is 2.80. Ordinary Portland cement (TypeI) will be used. A slump of 100 mm is necessary. C.A. is found to be absorptive to the extent of 2% and free surface moisture in sand is found to be 4 per cent. Assume any other essential data. (14M)

7. a) What are the different metallic and non metallic fibers used to prepare fiber reinforced concrete (FRC) and discuss their influence on FRC properties? (7M)
b) Write short notes on no fines concrete and their applications. (7M)
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Code No: R1622014 **R16** SET - 1

II B. Tech II Semester Regular/Supplementary Examinations, November - 2020

CONCRETE TECHNOLOGY

(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (Part-A and Part-B)
2. Answer ALL the question in Part-A
3. Answer any FOUR Questions from Part-B

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PART –A

1.	a)	What is sulphate attack?	(2M)
	b)	Mention the Effect of time and temperature on workability	(3M)
	c)	What is the affect of rate of loading on compressive strength of concrete	(2M)
	d)	Mention how the shrinkage of concrete is prevented	(2M)
	e)	List the factors considered in the concrete mix design	(3M)
	f)	What is aspect ratio of fiber and mention its affects on fresh properties of concrete	(2M)

PART -B

2.	a)	Discuss about the different stages of hydration of cement	(7M)
	b)	Discuss about the different chemical admixtures and their functions	(7M)
3.	a)	Discuss about the slump test to determine the workability of fresh concrete	(7M)
	b)	What is bleeding and explain method of Test for Bleeding of Concrete	(7M)
4.	a)	Briefly discuss about the methods to assess tensile strength of concrete	(7M)
	b)	Discuss about the Factors Affecting Compressive Strength of concrete	(7M)
5.	a)	What is creep and discuss about the Factors affecting Creep of concrete	(7M)
	b)	Explain in detail about the determination of Young's Modulus and Stress-strain curve for concrete.	(7M)
6.		Design a concrete mix of grade M40 for the following data as per IS:10262 The specific gravity of FA and C.A. are 2.67 and 2.75 respectively. The dry rodded bulk density of C.A. is 1600 kg/m^3, and fineness modulus of FA is 2.80. Ordinary Portland cement with specific gravity 3.06 to be used. A slump of 40 mm is required. water absorptive of C.A. is 1% and free surface moisture in sand is found to be 3 per cent. Type of work is RCC and SP is allowed. Assume any other suitable data if required.	(14M)
7.	a)	Distinguish high strength and High performance concrete and their applications	(7M)
	b)	Discuss about the manufacture of light weight concrete and its application	(7M)
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Code No: R1622014 **R16** SET - 1

II B. Tech II Semester Supplementary Examinations, December - 2022

CONCRETE TECHNOLOGY

(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (Part-A and Part-B)
2. Answer ALL the question in Part-A
3. Answer any FOUR Questions from Part-B

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PART –A **(14M)**

1.	a)	What is alkali aggregate reaction?	(3M)
	b)	Explain about Shrinkage.	(2M)
	c)	What are the codal provisions of NDT?	(2M)
	d)	What is Abram's law?	(2M)
	e)	What are the Factors affecting workability of concrete?	(3M)
	f)	What is Shotcrete?	(2M)

PART –B **(4X14M=56M)**

2.	a)	What are the main compounds in Portland cement and explain their properties?	(7M)
	b)	Mention the different tests to be conducted on aggregate and explain about impact and crushing tests.	(7M)
3.		Mention the different tests which are commonly used to measure workability and explain about any two tests.	(14M)
4.	a)	What are the various Non-destructive methods of testing concrete?	(7M)
	b)	Write about Flexure test and Split tensile test of concrete.	(7M)
5.	a)	Write about elastic properties of concrete.	(7M)
	b)	What is the relation between creep and time? What is the effect of creep on concrete?	(7M)
6.		Design a concrete mix of M25 grade. Take standard deviation of 4MPa. The specific gravities of coarse aggregate and fine aggregate are 2.72 and 2.60 respectively. The bulk density of coarse aggregate is 1610 kg/m^3 and fineness modulus of aggregate is 2.74. A slump of 75mm is necessary. The water absorption of coarse aggregate is 1% and free moisture in fine aggregate is 2%. Design the concrete mix using IS code method. Assume any suitable data.	(14M)
7.		Write about the following a) Self healing concrete b) Fibre reinforced concrete c) Light weight concrete	(14M)
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Code No: R1622014 **R16** SET - 1

II B. Tech II Semester Supplementary Examinations, June/July - 2022
CONCRETE TECHNOLOGY
(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (Part-A and Part-B)
2. Answer ALL the question in Part-A
3. Answer any FOUR Questions from Part-B
4. I S code is allowed

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PART –A

1. a) Discuss about the effect of mineral admixtures on mass concreting. (3M)
   b) What are the different types of tests for finding the physical properties of cement? (2M)
   c) What are the retarders and accelerators? (2M)
   d) What is segregation and bleeding? (2M)
   e) What is the Effect of time and temperature on workability of concrete? (3M)
   f) Write about Gel space Ratio. (2M)

PART -B

2. a) Write about bulking of aggregate and soundness of aggregate. (7M)
   b) What are the different types of admixture? Write about flyash and silica fume. (7M)

3. a) What are the different steps in the manufacture of concrete? (7M)
   b) Define workability. Write the factors influencing the workability. (7M)

4. a) What are the different tests performed on hardened concrete? Explain two tests. (7M)
   b) Explain the principle and methodology non-destructive testing of concrete using Rebound Hammer Method. (7M)

5. a) Write the factors effecting the modulus of elasticity. (7M)
   b) What is shrinkage of concrete? Explain about classification of shrinkage. (7M)

6. Design a concrete mix for characteristic strength of 30MPa at 28 days with a standard deviation of 4MPa. The specific gravity of FA and CA are 2.60 and 2.70 respectively. A slump of 50mm is necessary. The specific gravity of cement is 3.15. Assuming the necessary data design the mix as per IS code method. (14M)

7. Write about the following (14M)
   a) High density concrete
   b) Self consolidating concrete
   c) No fines concrete
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