

Code No: RT22015

R13**SET - 1****II B. Tech II Semester Regular/Supplementary Examinations, April/May - 2017****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 **THREE** Questions from **Part-B**
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PART -A

1. a) Write about accelerators and retarders. (4M)
- b) What is the effect of time and temperature on workability? (4M)
- c) Write about Gel space Ratio (3M)
- d) What is creep? What are the factors influencing creep? (4M)
- e) What is the durability of concrete? (3M)
- f) Write about RMC and SCC. (4M)

PART -B

2. a) What are the main compounds in Portland cement and explain their properties? (8M)
- b) Mention the different tests to be conducted on aggregate and explain about impact and crushing tests. (8M)
3. a) Write about segregation and bleeding. (8M)
- b) What are the factors affecting workability? (8M)
4. a) Explain the relation between compression and tensile strength. (8M)
- b) Describe the importance of curing and explain the different methods of curing. (8M)
5. a) Write the factors effecting the modulus of elasticity (6M)
- b) What is shrinkage of concrete? Explain about classification of shrinkage. (10M)
6. a) Write the design steps of a mix design by IS code method. (12M)
- b) What is the quality control of concrete? (4M)
7. a) Define light weight concrete and explain in detail the classification of light weight concrete. (8M)
- b) Write about high density concrete and SIFCON (8M)

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R13**SET - 2****II B. Tech II Semester Regular/Supplementary Examinations, April/May - 2017****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 **THREE** Questions from **Part-B**
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PART -A

1. a) Explain the different laboratory tests of cement. (4M)
- b) Explain the various steps in the manufacture of concrete. (4M)
- c) What is Abram's law? (3M)
- d) What is the importance of Non-Destructive tests? (3M)
- e) What are the factors in the choice of mix proportions? (4M)
- f) Write about Fibre reinforced concrete. (4M)

PART -B

2. a) Explain different methods of measurement of moisture content of aggregates. (8M)
- b) Explain briefly the physical properties of ordinary Portland cement. (8M)
3. a) Explain the various steps in the manufacture of concrete. (6M)
- b) Mention the different tests which are commonly adopted to measure workability and explain about any two tests. (10M)
4. a) Explain the Maturity concept of concrete. (6M)
- b) Write about Flexure test and Split tensile test of concrete. (10M)
5. a) Write about elastic properties of concrete. (6M)
- b) What is the relation between creep and time? What is the effect of creep on concrete? (10M)
6. Design a concrete mix of M30 grade. Take standard deviation of 5Mpa. The specific gravities of coarse aggregate and fine aggregate are 2.75 and 2.62 respectively. The bulk density of coarse aggregate is 1610 kg/m³ and fineness modulus of aggregate is 2.70. A slump of 60 mm 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 missing data. (16M)
7. a) Write the difference between High performance concrete and High Density concrete. (8M)
- b) What are the different types of polymers? What is polymer concrete? (8M)

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R13**SET - 3****II B. Tech II Semester Regular/Supplementary Examinations, April/May - 2017****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 **THREE** Questions from **Part-B**
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PART -A

1. a) What is bulking of sand? (4M)
- b) What are the fresh properties of concrete? (4M)
- c) What are the codal provisions of NDT? (3M)
- d) Write brief note on flexural strength of concrete. (4M)
- e) Define durability of concrete. (3M)
- f) Write about cellular concrete. (4M)

PART -B

2. a) What is the soundness of cement and how it is tested? (6M)
- b) What is alkali aggregate reaction? What are the factors promoting alkali aggregate reaction? (10M)
3. a) Define workability. Write the factors influencing the workability. (12M)
- b) Write about mixing and vibration of concrete. (4M)
4. a) What are the various Non-destructive methods of testing concrete? (6M)
- b) Explain the different tests of hardened concrete. (10M)
5. a) Write the thermal properties of concrete. (8M)
- b) Define creep and explain how creep is measured? (8M)
6. Design a concrete mix of M35 grade. Take standard deviation of 5Mpa. The specific gravities of coarse aggregate and fine aggregate are 2.76 and 2.63 respectively. The bulk density of coarse aggregate is 1610 kg/m³ and fineness modulus of aggregate is 2.72. A slump of 60mm 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 missing data. (16M)
7. Write about the following (16M)
 - i) Self compacting concrete.
 - ii) Fibre reinforced concrete
 - iii) Light weight concrete
 - iv) Ready mix concrete

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R13**SET - 4****II B. Tech II Semester Regular/Supplementary Examinations, April/May - 2017****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 **THREE** Questions from **Part-B**
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PART -A

1. a) Write short note on grading and surface area of aggregate. (4M)
- b) What is shotcrete concrete? (3M)
- c) What are the factors affecting strength of concrete? (4M)
- d) Write about dynamic modulus of elasticity. (4M)
- e) Write about quality control of concrete. (3M)
- f) What are the different types of special concrete? Write about any one. (4M)

PART -B

2. a) What are the different types of plasticizers and superplasticizers? (6M)
- b) What is fineness modulus? How is sieve analysis conducted for FA and CA (10M)
3. a) What are the steps in the manufacture of concrete? (8M)
- b) What is the quality of water mixing in concrete? (8M)
4. a) What is the relation between compression and split tensile strength? (8M)
- b) What are the different Non Destructive Tests? Also, write the codal provisions of NDT. (8M)
5. a) Discuss the relation between modulus of elasticity and strength. (8M)
- b) Define shrinkage and types of shrinkage. (8M)
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/m³ and fineness modulus of aggregate is 2.74. A slump of 60mm 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 missing data. (16M)
7. a) What are the different types of fibres? What are factors affecting properties of FRC. (10M)
- b) Write about High Performance Concrete (6M)