Code No: V3105 **R07** **Set No: 1**

III B.Tech. I Semester Supplementary Examinations, November/December - 2012

**CONCRETE TECHNOLOGY**

(Civil Engineering)

**Time: 3 Hours** **Max Marks: 80**

Answer any FIVE Questions

All Questions carry equal marks

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1 a) Why are tests on cement necessary in a cement plant?
b) Distinguish between plasticizers and superplasticizers?

2 a) What is bulking of sand?
b) How are aggregates classified?

3 a) Describe briefly factors affecting workability of concrete?
b) Distinguish between segregation and bleeding of concrete.

4 a) Explain in detail the Gel/Space ratio?
b) Describe briefly factors affecting the strength of Concrete?

5 a) How do you determine the split tensile strength of concrete?
b) Discuss the various types of tests for the tensile strength of concrete?

6 a) Define creep of concrete?
b) What are the factors that affect the shrinkage and creep of concrete?

7 Design a concrete mix of M20 grade for a roof slab. Take a Standard deviation of 4 MPa. The Specific gravities of Coarse Aggregate and Fine Aggregate are 2.75 and 2.61respectively. The bulk density of coarse aggregate is 1510kg/$m^3$ and fineness modulus of fine aggregate is 2.82. 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 suitably.

8 a) Discuss the uses of steel fiber reinforced cement?
b) Why is light weight concrete preferred for constructing partitions in multi-storey buildings? Explain with respect to their physical characteristics of light weight concrete?

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Code No: V3105 **R07** **Set No: 2**

III B.Tech. I Semester Supplementary Examinations, November/December - 2012

**CONCRETE TECHNOLOGY**

(Civil Engineering)

**Time: 3 Hours** **Max Marks: 80**

Answer any FIVE Questions

All Questions carry equal marks

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1 a) How is fineness of cement measured?
b) Distinguish between pozzolanic and cementious admixtures?

2 a) Differentiate between 'continuously graded' and 'gap graded' aggregate?
b) What are the effects of the shape and texture of aggregates on the strength and workability of concrete?

3 a) Discuss the factors affecting bleeding of concrete?
b) What are the various factors which affect the workability of concrete?

4 a) Write brief note on Flexurar strength of Concrete?
b) Describe the importance of curing? When should it be commenced? For how long should it be continued?

5 a) Why various Non-destructive methods of testing concrete have been developed?
b) How do you convert the strength of a concrete core to the estimated strength of a test cube?

6 a) Describe the role of aggregate in creep of concrete?
b) Explain what is meant by differential shrinkage?

7 Design a concrete mix of M30 grade for a roof slab. Take a Standard deviation of 5 Mpa. The Specific gravities of Coarse Aggregate and Fine Aggregate are 2.72 and 2.58 respectively. The bulk density of coarse aggregate is 1570kg/$m^3$ and fineness modulus of fine aggregate is 2.79. 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 suitably.

8 a) What are the uses of polymer concrete?
b) What are the various quality control tests done to ensure good performance of polymer concrete?

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Code No: V3105 **R07** **Set No: 3**

III B.Tech. I Semester Supplementary Examinations, November/December - 2012

**CONCRETE TECHNOLOGY**

(Civil Engineering)

**Time: 3 Hours** **Max Marks: 80**

Answer any FIVE Questions

All Questions carry equal marks

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1 a) What are the major compounds in Portland cement?
b) What method will you adopt to cure concrete in areas of water shortage?

2 a) How can we control the Alkali-Aggregate reaction explain?
b) Mention the different tests to be conducted on Aggregates and explain in brief Flakiness Index test and Elongation Index tests?

3 a) What is meant by consistency of a mix?
b) Distinguish between segregation and bleeding of concrete?

4 a) Define gel/space ratio?
b) What are the various types of watering hydrated cement paste?

5 a) Why are compression tests cylinders capped?
b) Discuss the various advantages and disadvantage of cube- and cylinder –shaped test specimens?

6 a) State and explain factors affecting creep of concrete.
b) Discuss the main factors affecting the shrinkage of concrete.

7 Design a concrete mix of M25 grade for a roof slab. Take a Standard deviation of 4 Mpa. The Specific gravities of Coarse Aggregate and Fine Aggregate are 2.78 and 2.59 respectively. The bulk density of coarse aggregate is 1570kg/$m^3$ and fineness modulus of fine aggregate is 2.79. 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 suitably.

8 a) How does silica fume help in reducing bleeding?
b) What are the factors which control the performance of High performance concrete?

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Code No: V3105 **R07** **Set No: 4**

III B.Tech. I Semester Supplementary Examinations, November/December - 2012

**CONCRETE TECHNOLOGY**

(Civil Engineering)

**Time: 3 Hours** **Max Marks: 80**

Answer any FIVE Questions

All Questions carry equal marks

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1 a) What are the main stages in the manufacture of Portland cement?
b) What is soundness of cement and how is it tested?

2 a) What is meant by surface texture of aggregate?
b) Define 'fineness modules' Give the practical range of fineness modulus values for coarse and fine aggregates.

3 a)What is the relationship between the strength and density of concrete?
b) Compare the relative merits and demerits of various workability tests?

4 a) Explain the influence of water/cement ratio on strength of concrete.
b) Discuss maturity of concrete? How is it measured? What are its practical uses in the concrete industry?

5 a) what is meant by non destructive methods of testing concrete?
b) How will you determine the hydration of hardened concrete?

6 a) What is the relation between the modulus of elasticity of concrete and strength?
b) Discuss the main factors affecting the shrinkage of concrete?

7 a) What are the main factors in designing concrete for durability?
b) Explain the importance of the maximum size of aggregate for normal-strength Concrete mix design?

8 a) What are the advantages of using high-strength concrete?
b) What are the applications of fibre reinforced concrete?

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