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Total Number of Pages: 02

B.TECH
PCI3D001

3rd Semester Regular Examination 2016-17

CONCRETE TECHNOLOGY

BRANCH(Honours): CIVIL

Time: 3 Hours

Max Marks: 100

Q.CODE: Y782

**Answer Part-A which is compulsory and any four from Part-B.
The figures in the right hand margin indicate marks.**

Part – A (Answer all the questions)

Q1 Answer the following questions: *fill up blank* (2 x 10)

- Lesser water content in the concrete mix leads to the stage of ----- .
- In nominal mix concrete, the proportion of constituents for M20 is ----- .
- Concrete can be divided into two categories like ----- and ----- .
- is the property of concrete which determines the ease with which it can be placed and transported.
- A water reducing admixture can increase ----- of fresh concrete mixture by reducing the surface tension of water.
- Full form of NDT is ----- .
- water is most suitable for concrete preparation.
- The name of IS Code referred for mix design of concrete is ----- .
- The formula used for calculating the modulus of elasticity of concrete is ----- .
- The standard density of concrete is ----- .

Q2 Answer the following questions: *Short answer type* (2 x 10)

- State the chemical composition of Portland cement.
- Which equipment is used for finding the initial setting time of cement?
- State the ranges of slump value for *low workability* and *medium workability*.
- State two common uses of *admixtures*.
- State 3 important properties of coarse aggregate.
- What do you mean by curing of concrete? What curing period is followed for concrete?
- What is the size of the concrete cube used for finding its compressive strength?
- Distinguish between *segregation* and *bleeding*.
- State different types of polymer concrete?
- What do you mean by high performance concrete?

Part – B (Answer any four questions)

- Q3** a) Explain the following important properties of concrete; workability, consistency, water cement ratio. **(10)**
- b) Distinguish between *initial setting time* and *final setting time* of cement. **(5)**
- Q4** What are the properties of fresh concrete? Explain the slump test method with a neat sketch. **(5+10)**
- Q5** a) What is the necessity of curing of concrete? State various methods of curing. Explain any one method briefly. **(3+3+4)**
- b) Explain the term; hydration process of cement. **(5)**
- Q6** a) Explain the method of testing of the compressive strength of concrete. **(10)**
- b) State Abram's law. What are the various parameters which control the strength of concrete? **(2+3)**
- Q7** a) Describe the procedure of preparation of polymer-impregnated concrete. **(10)**
- b) State the uses and applications of light weight concrete. **(5)**
- Q8** What do you mean by mix design of concrete? Explain the IS method of mix design of concrete briefly. **(5+10)**
- Q9** a) Explain any one method for evaluation of concrete structure by non destructive testing. **(10)**
- b) Describe the advantages of self compacting concrete. **(5)**