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Total Number of Pages : 02

B.Tech
PCI3D001

3rd Semester Back Examination 2019-20

CONCRETE TECHNOLOGY

BRANCH : CIVIL

Max Marks : 100

Time : 3 Hours

Q.CODE : HB937

Answer Question No.1 (Part-1) which is compulsory, any EIGHT from Part-II and any TWO from Part-III.

The figures in the right hand margin indicate marks.

Part- I

Q1 Only Short Answer Type Questions (Answer All-10) (2 x 10)

- Write the function of gypsum in cement.
- Define all-in-aggregate.
- Define the fineness modulus of aggregate.
- State Abraham's law of water cement ratio
- Define compaction factor.
- Name the various stages of manufacture of concrete.
- Determine the flexural strength of M25 grade concrete.
- Write the difference between the nominal mix and design mix of concrete.
- Define Poisson's ratio of concrete
- State durability of concrete.

Part- II

Q2 Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 x 8)

- Name all the Bogue's compound in cement with their characteristics.
- What is plasticizer? Explain its behavior in concrete.
- How is the aggregate classified according to size, shape and texture?
- Explain bulking of sand.
- The strength of a fully matured concrete is 40MPa. Using maturity concept estimate the strength of identical concrete at 20 days when cured at an average temperature of 10°C for 10 hours and 15°C for 14 hours and 18°C for rest of the period. Plowman constant, A=32 & B=52
- Explain about the factors affecting the strength of concrete.
- Differentiated between segregation and bleeding.
- Explain different types of shrinkage in concrete.
- Define creep of concrete. Mention the factors influencing creep of concrete.
- Explain about secant modulus and tangent modulus of concrete
- Explain briefly about fibre reinforced concrete.
- Discuss high performance concrete.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

- Q3** Mention the common laboratory tests which are performed to test the physical properties of cement. Describe any two tests in details. **(16)**
- Q4** What is workability of concrete? Mention the factors affecting workability. Describe in details about measurement of workability of concrete by anyone method. **(16)**
- Q5** Define non-destructive testing of concrete? Describe the commonly used non-destructive testing methods for testing strength and quality of concrete. **(16)**
- Q6** Write down the procedure of concrete mix design as per IS: 10262-2009. **(16)**