

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: BE
BRANCH: CIVIL**

**SEMESTER : VII
SESSION : MO/18**

SUBJECT: CE8015 CONSTRUCTION ENGINEERING PRACTICES

TIME: 3 HOURS

FULL MARKS: 60

INSTRUCTIONS:

1. The question paper contains 7 questions each of 12 marks and total 84 marks.
 2. Candidates may attempt any 5 questions maximum of 60 marks.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Why Weight Batching is superior to volume batching? [2]
Q.1(b) Discuss briefly the differences between ready mixed concrete and site mixed concrete. [4]
Q.1(c) Define curing of concrete? Discuss different methods of curing mentioning their application areas. [2+4=6]
- Q.2(a) What is auto-cleaving? [2]
Q.2(b) Explain maturity concept of concrete with an example. Calculate the maturity of the fully mature concrete. [4]
Q.2(c) The relation between strength and maturity for a concrete is known to be as follows: [6]
in SI units: $f_c = -33 + 21 \log_{10} M$.
Calculate the strength when the concrete is cured at 20°C for 7 days. What temperature would be required to reach a strength of 20 MPa at 28 days.
- Q.3(a) How hot weather affect the strength of concrete? [2]
Q.3(b) Write down the conditions to consider hot weather concreting. [4]
Q.3(c) What are the precautionary measures that can be taken to manufacture concrete in hot weather region? [6]
- Q.4(a) What is fiber reinforced concrete? What are the different fibers used in fiber reinforced concrete? [2]
Where fiber reinforced concrete is used?
Q.4(b) What is polymer? What are the uses of polymer composite concrete? [4]
Q.4(c) In order to produce self compacting concrete, what modification has to be done in concrete mix design process? Justify your answer. [6]
- Q.5(a) Write short notes on the following: histogram and Pie chart. [2]
Q.5(b) Explain the importance of quality control in concrete production. [4]
Q.5(c) Define mean and standard deviation in context of concrete quality estimation. [6]
- Q.6(a) What is corrosion? [2]
Q.6(b) What are the chemical reactions involved in the process of corrosion? [4]
Q.6(c) How corrosion can be prevented? [6]
- Q.7(a) State the difference between destructive and non-destructive testing procedure in concrete. [2]
Q.7(b) Sketch and discuss briefly the different parts of rebound hammer. [4]
Q.7(c) Discuss the mechanism for ultrasonic pulse velocity test for assessing imperfections present in concrete structures? what are the limitations of this test. [6]

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