

S.E Civil IV CBSGS

Q.P.Code:17040

07.6.17

[REVISED COURSE]

(3 Hours)

[Total Marks : 80]

NOTE:.

- Question No. 1 is compulsory.
- Attempt any Three out of the remaining five questions.
- Figure to the right indicates full marks.
- Draw neat sketches wherever necessary.
- Assume suitable data wherever required.

- Q.1 (a) What is hydration of cement? Describe the role played by Gypsum in the hydration reaction of cement. 05
- (b) What are the properties one looks for in sand & water and how does one test them for its acceptance for use in concrete? 05
- (c) According to IS-456 2000, state the various types of workability with slump value, compaction factor and applications, in a tabular form. 05
- (d) How will you decide the maximum aggregate size, zone of sand and air content in aggregate. 05
- Q.2 (a) Why grading of aggregate is important in concrete. Write explanatory notes on i) uniform grading, ii) Gap grading and, iii) continuous grading. 10
- (b) Define cold weather concreting. What are the effects of cold weather on concrete? What are the precautions to be taken during cold weather concreting? 10
- Q.3 (a) Enlist the various factors required for mix design. How do they affect the process of mix design? 10
- (b) Define High Performance concrete. What are the constituents of HPC? Explain the method of making high performance concrete. 10
- Q.4 (a) Define the destructive, non destructive and partial destructive tests on concrete with examples. Explain in detail core test. 10
- (b) What do understand by setting times of cement? Explain the procedure to determine the setting times of cement. 10
- Q.5 (a) State the various physical properties of aggregates. How do they affect the strength of concrete? 10
- (b) Why w/c ratio is so important in concrete? Explain the effect of w/c ration on the strength and durability of concrete. 10
- Q.6 Write short notes on the following (any four) 20
- i No fines concrete
 - ii Retrofitting
 - iii Load test
 - iv HPC
 - v Nominal mix and design mix