

(3 Hours)

Total Marks: 80

N.B 1) Answer any four questions.

2) Each main Question carries equal marks.

Q.1 a) Explain general engineering properties of building materials along with their acceptance criterias.

----- 10 Marks.

b) Explain "Silica fume concrete" in detail.

----- 10 Marks

Q 2) Explain:-

----- 20 Marks.

- 1) Factors affecting the effectiveness of admixtures.
- 2) Hydra set
- 3) Compositions of basic building materials.
- 4) Need of advanced construction materials in today's Constructions.

Q 3) What is self compacting concrete? Explain in detail how it is prepared?

Also explain the tests conducted on fresh SCC.

----- 20 Marks.

Q 4. a) Explain how fly ash can be utilized efficiently in concrete?

----- 10 Marks.

b) What do you understand by, " Air entrained concrete"?

Explain how it is prepared? Also state its application in practice.

----- 10 Marks.

Q 5. a) Define. " High Performance Concrete" Explain salient features of HPC.

Also explain the classification of HPC.

----- 12Marks.

b) Which chemical admixtures are used in construction practices? Explain in detail along with their purposes.

----- 08Marks.

Q 6) Write short notes on followings (any four)

-----20 Marks

- a) SIFCON & SIMCON
- b) Smart materials used in construction.
- c) Role of superplasticisers in concrete mix.
- d) Materials used in nuclear structures
- e) Significance of Self compacting concrete.