

Con. 9898-13.

GS-7290

(3 Hours)

[ Total Marks : 100

**N.B.** (1) Question No. 1 is **compulsory**.(2) Attempt any **four** questions out of remaining **six** questions.(3) Assume **suitable** data wherever **required**.

- |        |   |    |
|--------|---|----|
| 1. (a) | Differentiate between the OPC and PPC.  | 5  |
| (b)    | Explain the effect of properties of aggregate on concrete.  | 5  |
| (c)    | Define workability of concrete and factors affecting on workability.  | 5  |
| (d)    | Explain the Marsh cone test in detail.  | 5  |
| 2. (a) | What are the properties of fresh concrete ? Explain in brief.   | 10 |
| (b)    | What are the various stages of manufacturing of concrete ? Explain in brief.  | 10 |
| 3. (a) | Discuss in brief various types of admixtures used in concrete.  | 10 |
| (b)    | What are the properties of hardened concrete ? Explain in brief.  | 10 |
| 4. (a) | What is concrete mix design ? Write step by step procedure of concrete mix design by IS method.   | 10 |
| (b)    | Explain extreme weather concreting.   | 10 |
| 5. (a) | Describe ultrasonic pulse velocity to carry out non-destructive testing of concrete.  | 10 |
| (b)    | Describe a typical R.M.C. plant with sketch.  | 10 |
| 6. (a) | Define 'High performance concrete'. Give its constituents. What are the various parameters considered in the production of H.P.C ? Discuss advantages of H.P.C. over ordinary concrete. | 12 |
| (b)    | Write short notes on :—   | 8  |
|        | (i) Fibre reinforced concrete   |    |
|        | (ii) Light weight concrete.   |    |
| 7. (a) | Differentiate between :—  | 10 |
|        | (i) Structural repairs and non structural repairs   |    |
|        | (ii) Rehabilitation and retrofitting of a damaged structures.   |    |
| (b)    | Write short notes on :—   | 10 |
|        | (i) Ferrocement   |    |
|        | (ii) Self compacting concrete.  |    |
-