1. Draw the figure for typical relationship between the fatigue strength and the number of cycles for concrete and mild steel with a minimum stress of zero. 2
2. Draw the figure for "Influence of test duration (or rate of loading) on strength and on strain strain capacity in compression.", 2
3. Draw the figure " Creep and Creep Recovery of Concrete stored in water and in air from the age 28 days, subjected to a stress of 9 MPa and then unloaded for cylinder stored in water" 2
4. Draw the figure "Effect of drying shrinkage for concrete dried from age t0 untill age t and subjected to cycles of drying and wetting", Explain. 3
5. A Reinforced Concrete Beam and a Plain Concrete Beam is subjected to two point bending test. What type of load deflection diagrams, crack pattern will you expect in each case. In RC beam, which of these cracks would be more serious? 4
6. In a RC beam under two point loading (No stirrup between the two load points), crack space between two cracks is dependent of the material properties. Explain 3
7. Explain the effect of acid attack on concrete. 3
8. Explain three of the factors that effect the influencing air entrainment. 3
9. Explain the Fundamentals of core cutting for compressive strength. How is the correction done for height/diameter ration? 3

10. Name two important parameters for the study of durability. Explain in short one method each (with diagram) of these parameters. 3

11. Explain the effect of choice of aggregate on the behavior of high strength concrete. Show graphically. Why does it effect so strongly. Why do we not have similar phenomenon in normal strength concrete? 4

12. Explain the role of Flyash in the durability and strength of concrete 3

13. Explain the role of Silica Fume in relationship to High Strength Concrete 3

14. In the production of cement, the hot clinkers have to be clinched that is cooled very fast. Why? 2