

GUJARAT TECHNOLOGICAL UNIVERSITY

4th Semester Civil Engineering – PDDC

Subject Code & Name : X40602 – Concrete Technology

Assignment

Date: 27-04-2015

Tutorial 1: Introduction of concrete.

1. Explain manufacturing process of cement.
2. Write short note on composition of concrete.

Tutorial 2: Ingredients of concrete.

1. Write short note on oxide component of cement and Bogue's compound.
2. Explain hydration of cement.
3. Enlist types of cement and elaborate any three.
4. Enlist physical property of Portland cement, write down three test to determine physical property of cement.
5. Write short note on Admixtures and enlist purpose of using admixtures.

Tutorial 3: Fresh concrete.

1. Write short note on workability enlist factors affecting workability.
2. What is segregation and bleeding in concrete..?
3. Write methods of mixing concrete.

Tutorial 4: Hardened concrete.

1. Write short note on tensile strength of concrete.
2. Write short note on compressive strength of concrete.
3. Enlist factors affecting strength of concrete and explain any three.
4. What is creep..? Explain in brief.

Tutorial 5: Durability and permeability of concrete.

1. Explain durability and enlist factors affecting durability.
2. Explain permeability of concrete. and importance of permeability.

Tutorial 6: Concrete in aggressive environment.

1. Explain Alkali Aggregate reaction, enlist factors promoting it.
2. Write short note on special coating for water proofing.

Tutorial 7: Special Concrete.

1. Enlist Different types of Special concrete, Explain fiber reinforced concrete.

Tutorial 8: Special concreting techniques.

1. Write down special techniques of concreting and explain under water concreting.

Tutorial 9: Concrete mix design.

1. Design a concrete mix for M40 using fly ash with following data.
 - a) Type of cement : OPC
 - b) Type of mineral admixture : Fly ash
 - c) Max. Normal size of Aggregate : 20mm.
 - d) Min. cement content : 320 kg/m³
 - e) Max. water cement ratio : 0.45
 - f) Workability : 100 mm. slump
 - g) Exposure condition : severe
 - h) Method of placing concrete. : Pumping.
 - i) Type of aggregate : crushed angular aggregate
 - j) Max cement content : 450 kg/m³
 - k) Admixture : Super plasticizer
 - l) Sp. Gravity of cement : 3.15 of
C.A : 2.74
 - i. of F.A : 2.74
 - ii. of Fly ash : 2.20
 - m) Water Absorption.
 - i. of C.A : 0.50 %
 - ii. of F.A : Nil
 - n) Free surface moisture.
 - i. of C.A : Nil
 - ii. of F.A : 1.50%

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