

Shantilal Shah Engineering College, Bhavnagar  
PDDC - 2<sup>nd</sup> Semester –Civil Engineering  
June-2021

Dt. 28.06.2021

### Tutorial-1

1. Explain Historical background of Cement in Detail.
2. Explain hydration process of cement and write importance of Bogue's compounds.
3. Write procedure to test cement for following: (i) Soundness test (iii) Setting time
4. Explain function of aggregates in concrete.
5. What do you understand by grading of aggregate? Name various types of grading and how does it affect the concrete?
6. Describe effect of size, shape and texture of aggregate on concrete.
7. Explain any one test on aggregates in detail

### Tutorial-2

1. List types of cements & its uses.
2. Explain importance of Chemical Admixtures in Concrete.
3. Define the following:
  - (a) Gel water
  - (b) Bound water
  - (c) Maturity of concrete
  - (d) Gel –space ratio
  - (e) Creep Bulk Density
  - (f) Specific gravity
4. Define Admixtures Types, Need & Benefits.
5. Explain Water requirements in Concrete Mix & Limiting Impurities.

### Tutorial-3

1. Define workability. State different methods of it. Describe any one in detail.
2. Write Detail notes on Methods of mixing, transportation & placing of concrete.
3. Define Segregation and Bleeding
4. Give detail definition of Stiffening, re-tempering
5. Why do we need to cure the concrete? Explain various methods of curing of concrete.

### Tutorial-4

1. Define Durability & Its significance.
2. Explain Shrinkage & factors affecting Shrinkage
3. What is permeability of concrete? Enlist factors affecting permeability of concrete. Explain anyone in detail.
4. Explain aspects of Elasticity & Creep of hardened Concrete.

5. List Destructive, Semi destructive & Non Destructive test of Concrete.

### Tutorial-5

1. Define carbonation of concrete.
2. What are the cause of carbonation?
3. Describe mechanism of cracking in concrete.

### Tutorial-6

1. Write short note on acid attack, sulphate attack & chloride attack.
2. Explain process of Alkali-Aggregate reaction.
3. Write detail note on Concrete for Hot Liquid.
4. What is effect of sea water on concrete & How to achieve good durability against it?

### Tutorial-7

1. Difference between High Strength Concrete & High performance concrete.
2. Describe Fiber reinforced concrete.
3. Write shot note on mass concrete.
4. Define Light weight concrete, Heavy Concrete & Precast Concrete.
5. Give uses of various types of concrete for different types of structures with its advantages.

### Tutorial-8

1. Where is pumped concrete used? What precautions are required for pumping the concrete?
2. What is ready mixed concrete? Write merit & demerits of RMC.
3. Write detail note on Hot & Cold Weather concreting.
4. Explain about Underwater concreting & Shotcrete.

### Tutorial-9

5. Design Concrete mix of M60 as per IS 10262:2019, Assume suitable data where required.

### Tutorial-10

1. What causes distress in structure or on a structural element?
2. How is damage assessment carries out in a Commercial or Residential Building?
3. Write detail note on repairing techniques.
4. Give detail list of available repairing materials & its benefits.