

AMCT25 CEMENT AND CONCRETE

UNIT-1 CEMENT

- 1.1 Raw materials, manufacturing process.
- 1.2 Composition of cement phases
- 1.3 Effect of composition on burn ability of clinker, influence of minor components.
- 1.4 Hydration of cement.

UNIT-2 TESTING AND QUALITY CONTROL OF CEMENT

- 2.1 Tests on properties of cement- consistency of standard paste, .
- 2.2 Setting time, soundness, strength of cement.
- 2.3 Quality control- litre-weight test,
- 2.4 Microscopic and X-ray investigation of clinker materials.

UNIT-3 TYPES OF CEMENT

- 3.1 Types of Portland cement, blast furnace slag cement,
- 3.2 Trief cement, high alumina cement,
- 3.3 White and coloured cement, oil well cement,
- 3.4 Hydrophobic cement, water proof cement,
- 3.5 Super sulphate cement, sulphate resisting cement.

UNIT-4 CONCRETES

- 4.1 Aggregates- types, characteristics.
- 4.2 Admixtures- types, characteristics.
- 4.3 Proportioning of concrete mixtures
- 4.4 Consideration, procedure.
- 4.5 Recent advances in concretes
- 4.6 Types, significance, characteristics.

UNIT-5 PROPERTIES OF CONCRETE

- 5.1 Strength, permeability, creep,
- 5.2 Thermal expansion, shrinkage, moisture movement,
- 5.3 Penetration of X-ray, abrasion resistance, fire resistance,
- 5.4 Freeze-thaw resistance, electrical properties.

References Books:

1. A.M.Neville and J.J.Brooks, Concrete Technology, Pearson Education, 1987.
2. Peter C.Hewlett (Editor), Lea's Chemistry of Cement and Concrete, 4th Edn. Elsevier, 1998.
3. Deborah DL. Chung, Multifunctional Cement Based Materials, Marcel Dekker Inc., 2003.