

AMAR-12 BUILDING MATERIALS-III

UNIT-1 REQUIREMENTS OF INGREDIENTS FOR MORTAR/ CONCRETE

- 1.1 Cement: definition, composition, strength, properties, manufacture, test for cement, types of cement
- 1.2 Sand : sources, impurities, classification, tests for bulking of sand, quality of sand
- 1.3 Coarse aggregate : Sources, shape, size, grading, sampling and analysis, impurities
- 1.4 Water: sources, requirements, water quality, tests

UNIT-2 CEMENT CONCRETE AND ITS MANUFACTURE

- 2.1 Definition, properties, specification, proportioning, water-cement ratio, workability, curing, water-proofing, guniting, special concretes.
- 2.2 Manufacture, construction of formwork, placing, quality assurance testing, fabrication, incorporation of steel in concrete.

UNIT-3 TYPES OF CONCRETE AGGREGATES AND CONCRETE

- 3.1 Lightweight aggregates, aerated concrete, no-fines concrete, polymer concrete,
- 3.2 RCC, prestressed concrete, fibre-reinforced concrete, ready-mixed concrete

UNIT-4 SURFACE FINISHING, FLOORING AND DAMP-PROOFING

- 4.1 Surface finishing: Smooth finishes, textured finishes, ribbed, etched, exposed aggregate finish weathering of finishes- external renderings- roughcast, dry dash, textured, stucco, gypsum and POP applications, protective and decorative coatings.
- 4.2 Paints- properties and defects in paints, enamels, distemper, plastic emulsion, special paints- fire retardant, luminous and bituminous paints.
- 4.3 Materials for damp-proofing and water-proofing concrete structures: Hot and cold applications, emulsified asphalt, vinyl, epoxy resins, chemical admixtures, bentonite clay etc. Properties, uses and cost of materials.
- 4.4 Types of flooring- laying methods for marble, mosaic, and terrazzo, plain cement flooring, flooring stones & tiles.

UNIT V GLASS

- 5.1 Composition of glass, brief study on manufacture, treatment, properties and uses of glass. Types of glass - float glass, cast glass, glass blocks, and foamed glass.
- 5.2 Decorative glass, solar control, toughened glass, wired glass, laminated glass, fire-resistant glass, glass blocks, structural glass - properties and application in building industry, glazing and energy conservation measures.

References Books:

1. Arthur Lyons, "Materials for Architects and Builders", an introduction Arnold, London, 1997.
2. Don A. Watson, "Construction Materials and Processes", McGraw Hill Co., 1986.
3. S.N Sinha, "Reinforced Concrete Design", Tata-McGraw Hill, New Delhi, 2002