

2.14 30280 CONSTRUCTION MATERIAL

UNIT-1 STONES:

- 1.1 Classification of rocks
- 1.2 Geological classification - igneous rocks, sedimentary rocks and metamorphic rocks
- 1.3 Chemical classification - argillaceous, siliceous and calcareous rocks
- 1.4 Physical classification - unstratified, stratified, foliated rocks.
- 1.5 Common rock forming minerals and their properties - silica, felspar, mica, hornblende and dolomite.
- 1.6 Qualities of good building stone
- 1.7 General characteristics, identification and uses of common building stones - granite, basalt, trap, sand stone, lime stone, dolomite, marble, slate, quartzite.
- 1.8 Natural bed of stones
- 1.9 Seasoning of stones.

UNIT-2 BRICKS:

- 2.1 Meaning and composition of brick
- 2.2 Preparation of brick clay - weathering, kneading and tempering of clay
- 2.3 Brief description and use of pug mill
- 2.4 Standard size and shape of wooden and steel moulds
- 2.5 Moulding - ground moulding, table moulding, and sand moulding and slop moulding, machine moulding, utility of frog.
- 2.6 Brief description and working of different types of kilns
- 2.7 Classification and testing of bricks as per B.I.S.

UNIT-3 TILES:

- 3.1 Use of tiles
- 3.2 Classification of tiles
 - 3.2.1 According to use
 - 3.2.2 According to shape
 - 3.2.3 Special tiles - Allahabad tiles, Mangalore tiles
- 3.3 Preparation of clay
- 3.4 Moulding, shaping, drying and burning
- 3.5 Properties and uses of fire clay tiles.

UNIT-4 LIME:

- 4.1 Introduction - lime, calcination, quick lime, slaking, setting, hardening, hydraulicity
- 4.2 Classification of lime as per B.I.S.
- 4.3 Manufacture of lime - process of charging, burning, collection and slaking.
- 4.4 Properties and uses of lime
- 4.5 Storage of lime
- 4.6 Testing of lime as per B.I.S.
- 4.7 Field test of lime as per B.I.S.

4.8 Pozzolanic materials as surkhi, cinder and fly ash.

UNIT-5 LIME MORTAR:

- 5.1 Constituents of lime mortar
- 5.2 Functions of sand and surkhi in lime mortar.
- 5.3 Preparation of lime mortar - mixing and grinding
- 5.4 Properties and common uses of lime mortar.
- 5.5 Constituents, function and properties of lime concrete

UNIT-6 CEMENT AND CEMENT MORTAR:

- 6.1 Introduction
- 6.2 Raw material
- 6.3 Manufacturing process of ordinary Portland cement
- 6.4 Flow diagram for wet and dry process
- 6.5 Properties and use of ordinary Portland cement
- 6.6 Constituents, function and use of cement mortar

UNIT-7 TIMBER:

- 7.1 Standing timber, rough timber, converted timber, exogenous trees, endogenous trees, softwood and hard wood.
- 7.2 Growth and general structure of exogenous trees
- 7.3 Seasoning of timber - natural and artificial
- 7.4 Conversion of timber by sawing
- 7.5 Common defects of timber and decay of timber
- 7.6 Preservation of timber
- 7.7 Qualities and uses of good timber
- 7.8 Manufacturing and uses of ply woods and different ply boards and laminated boards.

UNIT-8 PAINTS AND VARNISHES:

- 8.1 Classification of paints - oil paints, plastic paints, enamel paints, water paints and cement paints.
- 8.2 Constituent materials of paints
- 8.3 Preparation and uses of different paints
- 8.4 Constituents, properties and uses of varnish and polish - spirit polish and wax polish.
- 8.5 Different types and use of exterior paints

Reference Books:

- 1. Construction Materials by Sushil Kumar
- 2. Construction Materials by Rangwala