

31044 ESTIMATING AND COSTING I

DETAILED SYLLABUS

Unit I

INTRODUCTION

1.1 Estimation- Definition of Estimate- Necessity of Estimates- Importance of fair estimation- Duties and requirements of a good Quantity Surveyor- Types of Estimates- Approximate and Detailed Estimates- Main and Sub Estimates- Revised Estimates-Supplementary Estimates – Maintenance/Repair Estimates-Taking off Quantities- Trade and Group Systems- Merits of Trade/ Group systems- Stages in Detailed Estimation- Units of measurements for materials and works-Degree of accuracy in measurements- Measurement Books- Deduction for openings in masonry/plastering/colour washing works- Painting Coefficients- Categories of Labourers- Material requirements for different items of works- Labour requirement for different items of works- Standard Data Book- Task or Out turn of labourers Cost of materials and wages of labour- Schedule of Rates- Revision of rates- Market Rates- Lead- Cost of conveyance- Handling charges –Lump sum and Contingency provisions in Estimates- Abstract Estimates.

1.2 APPROXIMATE ESTIMATES Necessity of Approximate Estimates- Types – Service Unit method- Plinth Area method- Carpet Area method- Cubical Content method- Typical Bay method- Rough Quantity method- Examples for each method- Problems on preparation of Preliminary/Approximate Estimates for building projects.

Unit II AREAS AND VOLUMES

Areas of regular and irregular sections- Computation of Areas of Irregular figures- End Ordinate rule, Mid Ordinate rule, Average Ordinate rule, Trapezoidal rule, Simpson's rule- Problems- Volumes of regular and irregular solids- Computation of Volumes of Irregular solids- End Area rule, Mid Area rule, Average Area or Mean Area rule, Trapezoidal rule, Simpson's or Prismoidal rule.

2.2 EMBANKMENTS AND CUTTINGS Areas of cross sections of embankments of roads, tank bunds etc – Level Section and Two level Section- Areas of cross sections of cuttings of canals, drains etc- Level Section and Two level Section- Determination of Volume of Earth work in Embankment / Cutting with level sections of varying heights/ depths or with two level sections of uniform height/ depth.

Unit III ANALYSIS OF RATES

Analysis of Rates or Preparation of Data for the following Building works using Standard Data Book: 1) Cement/ Lime mortars; 2) Plain Cement Concrete in Foundation/ Leveling Course; 3) Flooring with cement concrete, plastered with

cement mortar; 4) Flooring with PCC finished with ellis pattern cement concrete surface; 5) Flooring with Cuddapa slabs; 6) Mosaic/ Ceramic tiled flooring; 7) Brickwork in cement mortar in foundation; 8) Brickwork in CM in super structure; 9) Brickwork in CM in partition with plastering; 10) Random rubble masonry in CM; 11) Coursed rubble masonry in CM; 12) Lime-Surki concrete in Weathering course finished with pressed tiles in CM; 13) Reinforced cement concrete in Slabs (per unit volume/unit area); 14) R.C.C in Beams; 15) R.C.C in Columns; 16) R.C.C in Sunshades; 17) Plastering Brick masonry with CM; 18) Pointing Stone masonry with cement mortar; 19) Painting the wood work; 20) Painting Steel work; 21) White/ Colour washing the plastered surfaces; 22) Form works (strutting, cantering, shuttering etc) for Slabs/Beams/ Columns; 23) Fabrication of Steel Reinforcement; 24) A.C Sheet roofing; 25) Supplying and fixing Rain water pipes – Exercises.

Unit IV TAKING OFF QUANTITIES BY TRADE SYSTEM

General- Methods of taking off quantities- Individual wall method- Centre line method- Examples- Entering the dimensions- Standard forms for entering Detailed measurements and Abstract estimates- Rounding of quantities. Preparing Detailed Estimate using Trade System and Take off quantities for all items of works in the following types of Buildings: A small Residential building with Two/Three rooms with RCC flat roof A residential building with Two/Three rooms with RCC sloped roof A Two Storied Commercial building (framed structure) with RCC

Unit V TAKING OFF QUANTITIES BY GROUP SYSTEM

General- Standard method of measurement- Taking off and Recording the dimensions- Order of Taking off- Dimension Paper- Entering dimension paper- Spacing dimensions- Descriptions - Cancellation of Dimensions - Squaring Dimensions- Method of Squaring- Checking the Squaring- Casting up the dimensions- Abstracting and Billing-Function of abstract- Use of Abstract sheets- Order of Abstracting- Preparing the Abstract –Checking the Abstract – Casting and Reducing the Abstract- Writing the bill- Method of writing the bill- Checking the Bill. Preparing Detailed Estimate using Group System and Take off quantities for all items of works in the following types of Buildings: A small Residential building with Two/Three rooms with RCC flat roof A small Residential building with Two/Three rooms with RCC sloped roof A Community hall with RCC columns and T-beams (Note: The same drawings of Unit 4 may be practiced and quantities compared)