

Contents

<i>Preface to the Twenty-Ninth Edition</i>	v
<i>Preface to the First Edition</i>	vi

1. Procedure of Estimating 1–26

Introduction; Metric System and Units; International System of Units—SI Units; Basic SI Units; Understanding Estimation; Main Items of Work; Introduction to Indian Standard (IS) Code 1200; Units of Measurements in Metric System; Units of Measurements and Payments for Various Items of Works and Materials; Sizes and Dimensions of Various Works in MKS and the Corresponding FPS Units, Approximate; Standard Modular Bricks; Traditional Bricks

2. Method of Building Estimate 27–64

Background; General Specifications; Details of Measurement and Calculation of Quantities (Ex. 2); Abstract of Estimated Cost (Ex. 2); Methods of Building Estimate; Method I; Details of Measurement and Calculation of Quantities (Ex. 3A); Plan and Elevation of Walls (Earth Removed); Two Roomed Building; Details of Measurement and Calculation of Quantities (Ex. 4A); Residential Building; Details of Measurement and Calculation of Quantities (Ex. 5A); Abstract of Quantities (Ex. 5A); Method II; Details of Measurement and Calculation of Quantities (Ex. 3B); Details of Measurement and Calculation of Quantities (Ex. 4B); Arch Masonry Calculation; Estimating of Steps; Abstract of Quantities; Introduction to the Delhi Schedule of Rates (DSR); Advantages of the DSR

3. Estimate of Buildings 65–179

Center Line Method; Long Wall–Short Wall Method; Estimate of Buildings; Masonry Platform; Details of Measurement and Calculation of Quantities (Ex. 1); Masonry Water Tank; Masonry Water Tank; Details of Measurement and Calculation of Quantities (Ex. 2); Abstract of Estimated Cost (Ex. 2); Details of Measurement and Calculation of Quantities (Motor Garage Ex. 3); Abstract of Estimated Cost (Motor Garage, Ex. 3); Abstract of Estimated Cost (Ex. 9 First Floor); Details of Measurement and Calculation of Quantities (Single Room Building Ex. 4); Abstract of Estimated Cost (Ex. 4); Estimate of a Two-Room Building with Front Verandah; Details of Measurement and Calculation of Quantities (Ex. 5); Abstract of Estimated Cost (Ex. 5); Estimate of a Three-Roomed Building with Front and Back Verandah; Details of Measurement and Calculation of Quantities (Ex.); Abstract of Quantities (Ex. 6); Six Roomed Building with Front and Back Verandahs and PIDF Rooms Cross-Section; Abstract of Quantities; Details of Measurement and Calculation of Quantities (Ex. 8); Abstract of Quantities (Ex. 8); Abstract of Quantities (Ex. 9); Estimate of an Office Building, one of the Room Having Semi-Circular Front; Centre to Centre Length of Walls (Ex. 10); Office Building Details of Measurement and Calculation of Quantities (Ex. 10); Abstract of Quantities (Ex. 10); Estimate of a Shop Building with Walls Abutting Boundary Land; Details of Measurement and

Calculation of Quantities (Ex. 11); Abstract of Estimated Cost (Ex. 11); Building with Wall Partly in Mud Mortar and Partly in Lime Mortar; Details of Measurement and Calculation of Quantities (Ex. 13); Abstract of Quantities (Ex. 13); Details of Measurement and Calculation of Quantities (Ex. 13); Abstract of Quantities (Ex. 5); Line Plan of Building; Abstract of Quantities (Ex. 14); Storeyed Buildings

4. Estimate of Different Types of Roofs 180–214

Introduction; Different Types of Roofs; Jack Arch Roof; Details of Measurement and Calculation of Quantities (Ex. 1); Abstract of Estimated Cost (Ex. 1); Madras Terrace Roof; Abstract of Estimated Cost (Ex. 3); Details of Measurement and Calculation of Quantities (Ex. 4); Abstract of Estimated Cost (Ex. 4); Roof Truss Shed; Wooden Roof Truss; Details of Measurement and Calculation of Quantities (Ex. 5); Abstract of Estimated Cost (Ex. 5); Steel Roof Truss; Details of Measurement and Calculation of Quantities (Ex. 6); Abstract of Estimated Cost (Ex. 6); Building with Jack Arch Roof and Arched Openings; Details of Measurement and Calculation of Quantities (Ex. 7); Abstract of Quantities (Ex. 7)

5. RCC Work and Structure 215–290

Introduction; Details of Measurement and Calculation of Quantities (Ex. 1); Abstract of Estimated Cost (Ex. 1); Estimate of RCC Roof Slab; Details of Measurement and Calculation of Quantities (Ex. 2); Abstract of Estimated Cost; Schedule of Bars—RCC Slab; Estimating of RCC Beam; Detail of Measurement and Calculations of Quantities (Ex. 3); Abstract of Estimated Cost (Ex. 3); Schedule of Bars RCC Beam; Details of Measurement and Calculations of Quantities (Ex. 4); Abstract of Quantities (Ex. 4); RCC Column with Foundation; Details of Quantities; Abstract of Cost (Ex. 5); Details of Measurement and Calculations of Quantities (Ex. 6); Abstract of Quantities (Ex. 6); RCC Retaining Wall; Details of Measurement and Calculations of Quantities (Ex. 7); Abstract of Cost (RCC Retaining Wall Ex. 7); Steel Stanchion; Details of Measurement and Calculations of Quantities (Ex. 8); Abstract of Estimated Cost (Steel Stanchion Ex. 1); Weights of RS Joists; Double Storeyed Building; Ground Floor; Details of Measurement and Calculation of Quantities (Ex. 9); Abstract of Estimated Cost (Ex. 9 First Floor);

6. Sanitary and Water Supply Works 291–335

Introduction; Importance of Estimation and Costing; Sanitary Works; Septic Tank; Sizes and Capacities of Septic Tank for Different Users; Design of Septic Tank for 25 Users; Estimate of Septic Tank for 25 Users; Details of Measurement and Calculation of Quantities (Ex. 1); Details of Measurement and Calculation of Quantities (Ex. 1); Design of Septic Tank for 50 Users; Estimate of Septic Tank for 50 Users; Details of Measurement and Calculation of Quantities (Ex. 1); Abstract of Estimated Cost (Ex. 2); Sanitary Water Seal Pit Latrine for Rural Homes; Estimate of Sanitary Pit Latrine; Details of Measurement and Cost (Ex. 3); Manholes; Details of Measurement and Calculation of Quantities (Ex. 4); Abstract of Estimated Cost (Ex. 4); Surface Drains; Details of Measurement and Calculation of Quantities (Ex. 5); Abstract of Estimated Cost (Ex. 5); Sanitary Fittings; Requirement of Sanitary Fittings in Different Types of Buildings; Pipe Laying; Water Supply Works; Estimate of Sanitary and Water Supply Works of a Building; Sanitary and Water Supply Works; Tube Well; Estimate

of 40 mm Diametre Tube Well with Ordinary Hand Pump; Bill of Quantities and Cost (Ex. 9); Estimate of 50 mm Diametre Tube Well with Deep Hand Pump; Bill of Quantities and Cost (Ex. 10); Electrification; Schedule of Points and Power (Ex. 1); Bill of Quantities (Ex. 1); Challenges in Estimation and Costing

7. Road Estimating 336–381

Introduction; Earth Work; Calculation of Quantities of Earthwork (Ex. 3); Abstract of Estimated Cost (Ex. 3); Calculation of Areas of Side Slopes (Ex. 3-II); Estimate of Earthwork; Abstract of Cost (Ex. 4); Abstract of Estimated Cost (Ex. 5); Abstract of Estimated Cost (Ex. 6); Vertical Drop in Ground; Earthwork in Hill Road; Sectional Areas; Calculation of Quantities; Estimate of Metalled Road; Details of Measurement and Calculation of Quantities (Ex. 7); Abstract of Cost (Ex. 7); Abstract of Cost (Ex. 8); Details of Measurement and Calculation of Quantities (Ex. 11); Abstract of Cost (Ex. 11); Railway Line Estimate; Estimated Cost of Laying 1 km of Railway Track Including Materials

8. Culverts, Bridges, and Wells 382–424

Introduction; Culverts; Details of Measurement and Calculation of Quantities (Ex. 1); Slab Culvert; Abstract of Estimated Cost (Ex. 1); Estimate of Two Metre Span Arched Culvert; Arched Culvert; Details of Measurement and Calculation of Quantities (Ex. 2); Abstract of Estimated Cost (Arched Culvert) (Ex. 2); Arched Culvert Isometric View—Parts Detached (Ex. 2); Details of Measurement and Calculation of Quantities (Ex. 3); Abstract of Estimated Cost (Ex. 3); Culvert with Curved Wing Wall; Arched Culvert 360 cm Span with Curved Wing Walls; Details of Measurement and Calculation of Quantities (Ex. 4); Abstract of Quantities (Ex. 4); Calculation of Lengths of Wing Walls (Ex. 4); Details of Measurement and Calculation of Quantities (Ex. 5); Abstract of Estimated Cost (Ex. 5); Culvert with Series of Spans; Estimate of Pier; Details of Measurement and Calculation of Quantities (Ex. 6); Abstract of Quantities (Ex. 6); Pipe Culvert; Pipe Culvert; Details of Measurement and Calculation of Quantities (Ex. 7); Abstract of Estimated Cost (Ex. 7); Steel Bridges; Masonry Well; Estimating of Well; Abstract of Cost (Ex. 8); Estimate of Well Foundation; Details of Measurement and Calculation of Quantities (Ex. 9); Abstract of Cost (Ex. 9); RCC T-Beam Bridge; Details of Measurement and Calculation of Quantities (Ex. 10); Abstract of Estimated Cost (Ex. 10); Conclusions

9. Irrigation Works 425–459

Introduction; Abstract of Cost (Ex. 1); Abstract of Quantities of Earthwork (Ex. 2); Aqueduct of a Minor Across a 'Nala'; Details of Measurement and Calculation of Quantities (Ex. 6); Abstract of Estimated Cost (Ex. 6); Drainage Syphon Across a Minor; Details of Measurement and Calculation of Quantities (Ex. 7); Fall; Details of Measurement and Calculation of Quantities (Ex. 8); Abstract of Estimated Cost (Ex. 8); Abstract of Estimated Cost (Ex. 9); Conclusions

10. Types of Estimate, Sanction, Project, Etc. 460–479

Introduction; Examples of Preliminary Estimate; Polytechnic Building; Cost

11. Analysis of Rates	480–557
Introduction; Task or Out-Turn Work; Labour (Mazdoor) Required for Different Works; Load for a Two-Bullock Cart; Load for Trucks; Materials for Different Items of Works; Rates of Materials and Labour Current in Lucknow During 2021; Analysis of Rates; Cement Concrete; Plastering; Pointing; Cement Concrete Floor; Panelled Door; Form Work of Slab (Centering and Shuttering); Analysis of Rates for Sanitary and Water Supply Works; Analysis of Rates Road Work	
12. Estimating of Quantities of Materials and Transport	558–575
Introduction; Details of Measurement and Calculation of Quantities (Ex. 1); Calculation of Materials (Ex. 1); Calculation of Materials (Ex. 5); Calculation of Materials (Ex. 6); Transport and Carriage of Materials; Conclusions	
13. Specifications	576–612
Introduction; General Specifications of a First Class Building; General Specifications of a Second Class Building; General Specifications of a Third Class Building; General Specifications of a Fourth Class Building; Detailed Specifications; Road Specifications; Detailed Specification of Road Work; Tack Coat; Carpet; Sand Flushing; Requirements of Different Classes of Roads	
14. Rules and Methods of Measurement of Works and Taking Out Quantities	613–630
Introduction; General Rules; Earthwork; Concrete; Brickwork; Stone Masonry; Woodwork; Classification of Timber; Carpenter's Work; Joinery; Steel and Iron Work; Roof Covering; Sloping Roof; Flat Terraced Roof; Ceiling; Floors and Pavings; Plastering and Pointing; White Washing, Colour Washing and Distemping; Painting; Sanitary and Water Supply Works; Electrical Work; Road Work; Tar and Bitumen Road; Dismantling and Demolition Materials	
15. Valuation	631–647
Introduction; Valuation of Building; Mortgage Lease; Fixation of Rent; Valuation and Rent Fixation of Government Building; Fixation and Calculation of Rent of Government Building; Plinth Area Required for Residential Buildings; Conclusions	
16. Reports, Technical and Design Data	648–688
Introduction; Report on Estimates for the Construction of Residential Building; Report on Estimate for Construction of a Culvert; Report on the Estimate for a Road Construction; Reports on the Estimate for the Construction of a Distributary–Irrigational Channel; Practical Data and Informations; Building Works; Bridges and Culverts; Road Works; Sanitary and Water Supply Works; Structural Design of Building and Thumb Rules; RCC Design, Data, Stresses, Formulaes, etc., in Metric and FP Systems; Reinforcement and Lateral Ties; Principle for the Preparation of Water Supply Scheme; Design of Economic Sizes of Slow Sand Filter Beds; Bridges and Culverts; Waterway and Span for Bridges and Culverts; Project; Design of Road Pavements; Classification of Traffic; Details of RCC Well Crub for Bridge Foundation	

17. PWD Accounts and Procedure for Works	689–765
Introduction to Public Works Department (PWD); Works; Different Types of Repairs Work; Tender Notice; Different Methods of Carrying Out Work; Conditions; Contract System; Contract Document; Stores; Materials at Site Account (MAS Account); Road Metal; Tools and Plants (T and P); Issue of Materials; Mode of Payment; Account; Public Works Accounts; The Major Revenue Heads; The Major Expenditure Heads; Cash Account; Power of Sanction; Duties of Overseers; Examples on Preparation of Bill; First Running Account Bill; Different Stages of Preparation of Project and Execution of a Major Work; Dealing with Railway; Credit Note; Travelling Allowance; Travelling Allowance Rules in UP	
18. Planning of Building and Colony	766–805
Introduction; Planning of Building; Orientation of Building and Principle of House Planning; Ventilation; Economy in Construction; Design of Building; Residential Building; Arrangements of Rooms, their Position and Purposes; Residential Accommodation for Various Classes of Employees; Planning Layout of Residential Colony; Plans of Different Types of Residential Buildings; Planning an Office Building; School Building; Hostel Building; Industrial Planning of Estate; Colony Planning; Covered or Built-up Area of a Plot; Building Bye-Laws; Network Planning and Scheduling Technique—Critical Path Method in Civil Engineering Works; Developing a Network; Network Diagram House Building: Activity and Event; Network Diagram House Building: Critical Path	
19. Village Housing	806–823
Introduction; Planning; House Design and General Arrangement; Types of Construction and Specification of Village Houses; Stabilized Soil Mud Wall; Water Proof Mud Plaster; Stabilized Soil Roads	
20. Schedule of Rates	824–864
Introduction; Schedule of Rates for Electrical Wiring	
21. Miscellaneous	865–884
Introduction; Latest Techniques Employed in Constructing High-Rise Apartments/ Building and their Estimation and Costing Procedures	
<i>Appendices</i>	885–926
<i>Index</i>	927–933