SOLUTION OF SET A

Q.1 A cost estimate is the approximation of the cost of a program, project or operation. The cost estimate is the product of the cost estimating process. The cost estimate has a single total value and may have identifiable component values. A problem with a cost can be avoided with a credible, reliable, and accurate cost estimate. A cost estimator is the professional who prepares cost estimates. There are different types of cost estimators, whose title may be preceded by a modifier, such as Building estimator or electrical estimator, or chief estimator.

There are different types of estimates and they are as follows:

**1. Preliminary Or Approximate Or Rough Estimate:**

This is an approximate estimate to find out an approximate cost in a short time and thus enables the authority concerned to consider the financial aspect of the scheme, for according sanction to the same. Such an estimate is framed after knowing the rate of similar works and from practical knowledge in various ways for various types of works such as:

1. Plinth area or square-meter method,
2. Cubic rate or cubic meter method,
3. Service until or until rate method,
4. Bay method,
5. Approximate quantities with bill method,
6. Cost comparison method,
7. The cost of materials and labor.

**2. Detailed Estimates:**

This includes the detailed particulars for the quantities, rates, and costs of all the items involved for satisfactory completion of a project.

Quantities of all items of work are calculated from their respective dimensions on the drawings on a measurement sheet. Multiplying these quantities by their respective rates in a separate sheet, the cost of all items of work are worked pout individually and then summarised, i.e abstracted (which is the detailed actual estimated cost of work). All other expenses required for satisfactory completion of the project are added to the above cost to frame the total of a detailed estimate.

A detailed estimate is accompanied by

1. Report
2. Specifications
3. Detailed drawings showing plans, different sections, Key or Index plan etc.
4. Design data and calculations
5. The basis of rates adopted in the estimate.

Such a detailed estimate is prepared for technical sanction, administrative approval and also for the execution of a contract with the contractor.

OR

1. **Preliminary Estimate**:

Defined as an activity in particular work to make possible offer to execute task base on a stipulated sum Technique to forecast the possible cost incurred for a certain building or construction project via a systematic calculation employing certain method, prepare at early stage of the project Is a part of the cost planning process that is controlling of the project cost at the design stage before any drawings are embarked upon.

Uses

1. To ascertain the actual cost forecast of a project.

2. Assist the client in knowing to what extent he need to be financially committed to a particular project

3. Estimated is also function as a design guide whether the project to the allocation made either

**Approximate** **Estimate Method**

Methods of preparation of preliminary or **approximate construction cost estimation** for studies of various aspects of work of project and its administrative approval is discussed. This estimate can decide, in case of commercial projects, whether the net income earned justifies the amount invested or not.

The approximate estimate is prepared from the practical knowledge and cost of similar works. The estimate is accompanied by a report duly explaining necessity and utility of the project and with a site or layout plan. A percentage 5 to 10% is allowed for contingencies.

**Plinth Area Estimate (P.A. Estimate)** :- P.A. is approximate estimate Plinth area should be calculated for covered area by taking external dimensions of the building at the floor level Courtyard and other open area should not be included For multi storeyed building Plinth Area for each storey is determined separately. Approximate total plinth area may be calculated by adding 30 to 40% of the already calculated area for walls, circulation and waste etc. Plinth area rate is known from cost of similar building in the locality.

**Cube Rate Estimate :-**  It is again approximate estimate Cubical content of the building is determined by multiplying length, breadth and height of the building. External length and breadth at the floor level are calculated for the purpose ϒ Height should be taken from the floor level to the top of roof. For multi storeyed building height is taken from floor level of one storey to top of next higher floor. Cube rate estimate is more accurate as compared to the plinth area estimate.

Structure divided into two parts – (i) Foundation including plinth (ii) Superstructure Total length of walls is found out. To find running meter rate of foundation, appx. quantities of various items are calculated per running meter Similarly for superstructure appx. Quantities of brickwork, roof, flooring etc is calculated per running meter.

It is the accurate estimate prepared by working out quantities of each items of work. It is prepared in two stages Details of measurements and calculation of quantities. Abstract of estimated cost – 3% to 5% of estimated cost is added to cover miscellaneous expenditure ϒ Detailed estimate is prepared work-wise. ϒ Detailed estimate consists of –Report , General Detailed specifications Drawings Calculation and designs Analysis of rates Detailed estimate is prepared for technical sanction, for arranging contract and for execution of project.

The preparations of detailed construction estimate consist of working out quantities of various items of work and then determine the cost of each item. This is prepared in two stages.

Methods of Detailed Construction Estimation Preparation

i) Details of measurements and calculation of quantities:

The complete work is divided into various items of work such as earthwork concreting, brickwork, reinforced concrete, plastering etc. The details of measurements are taken from drawings and entered in respective columns of prescribed proforma.

The quantities are calculated by multiplying the values that are in numbers column to Depth column as shown below:

Details of measurements form

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| S.NO. | PARTICULARS | NO. | LENGTH | WIDTH | HEIGHT | QTY. |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

### ii) Abstract of Estimated Cost:

The cost of each item of work is worked out from the quantities that already computed in the detailed measurement form at workable rate. But the total cost is worked out in the prescribed form is known as abstract of estimated form. 4%of estimated Cost is allowed for Petty Supervision, contingencies and unforeseen items.

### The detailed estimate should be accompanied with:

1. Report
2. Specification
3. Drawings (plans, elevation, sections)
4. Design charts and calculations
5. Standard schedule of rates.

OR

**B.O.Q** :- A bill of quantities (BOQ) is a document used in tendering in the construction industry / supplies in which materials, parts, and labor (and their costs) are itemized. It also (ideally) details the terms and conditions of the construction or repair contract and itemizes all work to enable a contractor to price the work for which he or she is bidding .The quantities may be measured in number, length, area, volume, weight or time. Preparing a bill of quantities requires that the design is complete and a specification has been prepared. The bill of quantities is issued to tenderers for them to prepare a price for carrying out the works. The bill of quantities assists tenderers in the calculation of construction costs for their tender, and, as it means all tendering contractors will be pricing the same quantities (rather than taking-off quantities from the drawings and specifications themselves), it also provides a fair and accurate system for tendering.

Q.3

Cornice : m

Brick Edging : running meter

D.P.C. Sq. m

Excavation : cum

R.C..C in sun shade : Sq.m

OR

Quarrying : Sq. m

Thin partition wall : Sq. m

Fencing : metre

Floooring : Sq. m

Q.4

**Site Plan :-**

A site plan is a land scape plan, and a detailed engineering drawing of proposed improvements to a given lot. A site plan usually shows a building footprint, travel ways, parking, drainage facilities, sanitary sewer lines, water lines, trails, lighting, and landscaping and garden elements.

Such a plan of a site is a "graphic representation of the arrangement of buildings, parking, drives, landscaping and any other structure that is part of a development project

A site plan is a "set of constructional drawing that a builder or contractor uses to make improvements to a property. Counties can use the site plan to verify that development codes are being met and as a historical resource. Site plans are often prepared by a design consultant who must be either a licensed engineer, architect, landscape architect or land surveyor

**Lay out Plan : -**

Master plan or blueprint of a printed or published work (such as an advertisement, book, magazine, newspaper, or website) that lays out the arrangement of its different graphic elements (such as body copy, colors, headlines, illustrations, scale). It establishes the overall appearance, relative importance, and relationships between the graphic elements to achieve a smooth flow of information (message) and eye movement for maximum effectiveness or impact. Often alternative layouts (called roughs) are prepared to explore different arrangements before the final layout is made for printing or production.

OR

## Revised Estimate:

1. This is required when the sanctioned amount is exceeded due to change of rates or addition of works fairly dependent on the work at first sanctioned. So, a revised estimate is due to material deviation from the original proposal.
2. It is accompanied with a comparative statement abstract from showing the probable variations for quantity, rate and amount against each item of work involved in the project.
3. Revised estimate is required due to change of rate or quantity of materials so no additions or revision of drawings is necessary.

## Detailed Cost Estimating :

Detailed cost estimating can be defined in a few ways, depending on the end purpose of the cost estimate. A detailed cost estimate might not mean the same thing to a contractor bidding on construction work as for a company preparing the project control estimate. The common denominator between both estimates just mentioned is the quantitative analysis of the work required by the project documents.

We could define the detailed cost estimate as the process of predicting costs of a construction project through quantitative analysis of all resources required for a complete project, as required by the design documents. The ability to play the mental movie of how the project will be built and to relate design documents and details to cost are key factors in developing a quality detailed cost estimate.

To determine the detailed cost estimate for a project, we can use the man-hour and/or unit rate cost estimating methods. Both methods could lead to achieving the projected accuracy, as costs are concerned. The unit rate method has limitations in regards to breaking the costs down by type: material, labour, equipment, construction equipment and temporary materials. The sources used for determining the costs have the most impact on accuracy.