**Rajasthan Institute of Engineering & Technology, Jaipur.**

**I Mid Term examination**

 **Session: 2017-18 Set-B**

**IVth Semester & CIVIL Branch**

**Subject :- Q.S.V (4CE6A)**

Time: 2 hrs. M.M.:20

1. No provision for supplementary answer book.

Q1.Write difference between the following

1. B.O.Q & Abstract sheet

2. Abstract & Measurement sheet

 **Or**

Q.1 What do you understand by Plinth area estimate and Supplementary Estimate

Q.2 Write briefly about Detailed Estimate

 **Or**

Q.2 Write about Revised Estimate with its cases

Q.3 Write Units of the following

 1. Supply of bricks

 2. Earthwork in wall

 3. Glazing

 4. Furniture

 5. Painting and white washing

 **Or**

Q.3 Write Units of the Following

 1. Quarrying

 2. Thin Partition wall

 3. Barbed wire fencing

 4. Centering and shuttering

 5. Flooring

Q.4 What do you Understand by Estimate and write any two types of estimates

 **Or**

Q.4 Write about Supplementary and Maintenance estimate

**SOLUTION OF SET B**

Q.1

**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.

### 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

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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.

Details of measurements and calculation of quantities:

1. 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 performa.
2. 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. |
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OR

**Plinth Area 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.

## Supplementary Estimate:

1. This is required due to supplementary works which are fairly independent of the work at first sanctioned. So, supplementary estimate is due to material deviation of a structural nature from the design originally approved.
2. No comparative abstract form is required. This is an estimate for additional works only. The abstract shows the original estimate and total amount of the sanction required including supplementary amount.
3. Supplementary estimate is required due to some new works or due to change of design, so additions or revisions of drawings may be necessary.

Q.2

 **Detailed Estimate :** forecast of construction cost prepared on the basis of a detailed analysis of materials and labor for all items of work, 1 as contrasted with an estimate based on current area, volume, or similar unit costs.

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. |
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### 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.

OR

**Revised Estimate :** Due to change in the rate of material or change in specification of materials, an estimate is often required to be modified. Thus, we prepare revised estimate against the original estimate. In the preparation of revised estimate, original estimate is also provided such that comparison can be made. There is no change in structural drawing and additional items are not added in the revised estimate.

Revised estimate is a detailed estimate. It is also accompanied by the original estimate for comparative purpose. While submitting the revised estimate, the reason for revision should also be stated.

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.

Q.3

Suupply of bricks :- Nos.

Earthwork in wall : Cum

Glazing : Sq.m

Furniture : Nos.

Painting and white washing : Sq. m

 OR

Quarrying : m

Thin partition wall : Sq.m

Fencing : Running metre

Centring : sq.m

Flooring : Sq.m

**Q.4**

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 out 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

Supplementary Estimate : During the execution of project, structural modification are required or addition work is added for construction. The estimate for additional work is called supplementary estimate. Supplementary estimate is also required to be prepared when some of the items are overlooked. In preparing the supplementary estimate reason for preparing the estimate would be clearly stated.
**Example:** Additional partition can be planned in the building. The estimate is prepared for partitioning as supplementary estimate. Structural / architectural changes are prerequisite for supplementary estimate.

1. This is required due to supplementary works which are fairly independent of the work at first sanctioned. So, supplementary estimate is due to material deviation of a structural nature from the design originally approved.
2. No comparative abstract form is required. This is an estimate for additional works only. The abstract shows the original estimate and total amount of the sanction required including supplementary amount.
3. Supplementary estimate is required due to some new works or due to change of design, so additions or revisions of drawings may be necessary.

 **Maintenance Estimate** : This is a special type of estimate which is prepared for project maintenance for a certain duration which is mandatory to the project. Earlier it was prepared separately but now it is prepared with the original contract so that project can be used for a desired duration. In this company name, contractor name, date, maintenance date and time and sign in the presence of competent authority is necessary so that legal boundation can be implemented.