

SECTION. I

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Q1. Valuation: IS the technique of estimating or determining the fair price or value of a property or it is the process of carrying out an assessment of work covered by contractor and the value of materials used.

Q2. Tendering: It is a process of inviting and selecting contractor by owner to tender to execute the particular project.

Q3. The six aspects to look at from the site are:

- Site accessibility
- Location of site
- Topography of the site
- Availability of labours
- Availability of materials
- Availability of services and facilities
- Site boundaries
- Climatic condition
- Local availability of plant & equipment
- Water table

Q4. The two types of estimate are:

- Detailed estimate or item rate estimate
- Approximate estimate or preliminary estimate or rough estimate.

* Detailed estimate: It consists of working out of quantities of each item of work and determine the cost of each item. It is prepared in two stages which are:

- Preparation of details measurement and taking out or
- Calculation of quantities
- Abstract of estimated cost

* Approximate estimate: It is an estimate done without detailing of measurement and calculation of quantities.

It may be done in three methods:

- Plinth area method
- Cubical content method
- Unit base method

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Q5. Other types of estimate

- Supplementary estimate
- Revised estimate
- Annual repair estimate

Q5. The three factors to consider while preparing a detailed estimate are

a) Quantity and transportation of materials: For bigger project the requirement of material is more. Such bulk volume of material will be purchased and transported definitely at cheap rate. 1/2 marks

b) Location of the site: The site of work is selected such that it should reduce damage or in transit during loading, unloading, stocking of material. 1/2 marks

c) Local labour charges: The skill, suitability and wages of local labours are considered while preparing the detailed estimate. 1/2 marks

Q6. Four advantages of an open tendering are:

- A very competitive tender. 1 mark
- Only interested firms will submit their bids. 1 mark
- New firms are able to obtain work and prove themselves. 1 mark
- There is no corruption and favoritism in drawing up the list of tenderers. 1 mark
- All contractors are invited.
- It can reduce or minimize the conflict between

Contractors.

any five elements are enough

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Q7. Five points to consider while selecting the best contractor are:

- Experience for previous works or technique reference. 1 mark
- Equipment and machines plants or mechanical plants 1 mark
- List of professionals and their qualification 1 mark
- Financial stability in business. 1 mark
- Health and safety plan (insurance) 1 mark
- Type and size of project
- Real willingness to tender
- Tax payment

any five elements are enough

Q8. Five documents to accompany the detailed estimate

- Drawings 1 mark
- Specification 1 mark
- Bill of quantities 1 mark
- Standard schedule of rates 1 mark
- Geotechnical report 1 mark

any five elements are enough

Q9. Four purposes of rate analysis.

- To work out actual cost of item per unit of the item 1 mark
- Getting rate of various materials to be use. 1 mark
- To know the wages of labours 1 mark
- To know the cost of transportation of materials. 1 mark
- To revise schedule of rate due to increase in cost of materials and labours or due to change in technique

To know the task of labour at a given time

any four elements are enough

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Q10

Lift Statement: It is the vertical distance to which the earth has to be lifted from the source to the place of spreading while

Lead Statement is the horizontal distance between the centre of excavation to the centre of deposition. / 2 marks

Q11. The five members of the responsible team to prepare an estimate are:

- Quantity Surveyor: Prepare Bill of quantities and advice the client. / 1 mark

- Structure engineer: To prepare the structural analysis and determine the specification of materials to be used. / 1 mark

- Architecture: He produces the drawings

- Geotechnique Engineer: He deals with the characteristics of soil / 1 mark

- Contractor: He prepares an estimate to submitted in tender. / 1 mark

- Planners

- Owner: He decide and approve the estimate

- Surveyor any five are enough

Q12

Cost is the amount of money for a construction project while

Price is the value of a property at the market. / 2 marks

Q13

Bill of quantities: It is a document which gives a complete description and measurement of quantities of labours, materials and other items required to carry out the work

based on specification and drawing 12 marks

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Q14. The three responsible of a quantity surveyor

- Advice client 1 mark
 - ^{coordination} preparing bill of quantities 1 mark
 - Give ideas and explanation when it is required. 1 mark
 - Prepare tender document
- any three are enough

SECTION II

Q15. The five main purposes of valuation

- Buying or selling: When it is required to buy or to sell a property its valuation is required. 12 marks
 - Taxation: ~~To assess~~ when you want to fix the tax of a property its valuation is required. 12 marks
 - Rent fixation: In order to know the rent of property its valuation is required. 12 marks
 - Security of loan or ~~mortgage~~ ^{Mortgage}: When loans is taken against the security of ~~the property~~ of loan the valuation of loan is required. 12 marks
 - Compulsary acquisition: Whenever a property is acquired by law compensation its valuation is required. 12 marks
 - Valuation also is required for: insurance and betterment charges
- ~~mortgage mortgage~~ speculation

any five are enough

Q16. Five different various outgoings are:

- Taxation: you have to pay all taxes required for example: Municipal tax, tax of the property wealth tax. 12 marks
- water and electricity
- Miscellaneous outgoings: this includes electric charges for running lift, pump for lighting common place and

Similar other charge which are to borne ^{2 marks}
 - Repairs: You should repair your building.
 for example; repainting to increase or to
 maintain its value. ^{1/2 marks}

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- Insurance:
 - Loss of rent: The property may not be kept
 full occupied in such case the suitable
 amount should be deducted from the
 gross ~~rate~~ rent under ^{2 marks}

- Sinking Fund: Money that you save ^{2 marks}
 to pay for something in future
 Management and collection charges; these include
 the expenses on rent collector such as
 watch watchman, lift man, sweepers etc.
 any five are enough

Q17.	Items	units
1.	Excavation	m^3 ^{1/2 mark}
2.	Flooring	m^2 ^{1/2 mark}
3.	Wall elevation	m^3 ^{1/2 mark}
4.	Foundation masonry	m^3 ^{1/2 mark}
5.	Fence in burnt bricks	m^3 ^{1/2 mark}
6.	Paint	m^2 ^{1/2 mark}
7.	Ceiling	m^2 ^{1/2 mark}
8.	Electrical distribution	LS/RM ^{1/2 mark}
9.	Site clearance	LS ^{1/2 mark}
10.	Site installation	LS ^{1/2 mark}

Q18. Given data: ~~Mix ratio~~ Mix ratio : 1:2:4

Volume : 20 m^3

* Requested: Quantity of cement, sand and gravel

1 m^3 wet concrete = 1.52 dry concrete

$1 \text{ m}^3 = 1440 \text{ kg/m}^3$ or 1.44 t/m^3

1 bag of cement = 50 kg

Solution

Total ratio = $1+2+4 = 7$

a) Quantity cement = $\frac{1}{7} \times 1.52 \times 20 \text{ m}^3 \times 1440 \text{ kg/m}^3$

= 125.07 bags \approx 126 bags / 2 marks

or = $\frac{1}{7} \times 1.52 \times 20 \text{ m}^3 = 4.342 \text{ m}^3$

Quantity of sand = $\frac{2}{7} \times 1.52 \times 20 \text{ m}^3 = 8.6 \text{ m}^3$ / 2.5 marks

Quantity of gravel = $\frac{4}{7} \times 1.52 \times 20 \text{ m}^3 = 17.37 \text{ m}^3$ / 1.5 marks

b) Given data: Mix ratio : 1:4

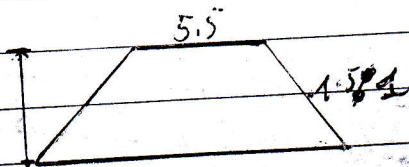
Volume = 1 m^3

Quantity of cement = $\frac{1}{4} \times 1 \text{ m}^3 \times 1440 \text{ kg/m}^3 = 7.2$ bags or 8 bags

or = $\frac{1}{4} \times 1 \text{ m}^3 = 0.25 \text{ m}^3$ / 2.5 marks

Quantity of sand = $\frac{4}{4} \times 1 \text{ m}^3 = 1 \text{ m}^3$ / 2.5 marks

Q19



$b = 5.5 \text{ m}$

$d = 12 \text{ m}$

$L = 12 \text{ m}$

$n = 1.5$ / 1 mark

Request = Volume

Formula = $V = \left(\frac{bd + nd^2}{4} \right) L$ / 3 marks

$$= [2.5 \times 2.5 + 1.5 \times (2.5)^2] \times 12 \text{ m} / 2 \text{ marks}$$

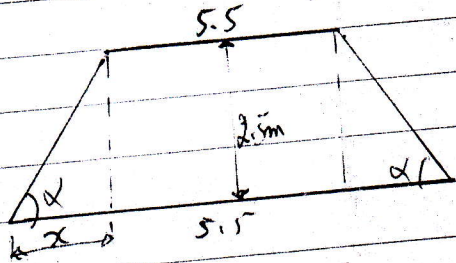
$$= [13.75 \text{ m}^2 + 9.37 \text{ m}^2] \times 12 \text{ m} / 2 \text{ marks}$$

$$= 277.5 \text{ m}^3 / 2 \text{ marks}$$

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and way

Given data: length = 12 m
Top width = 5.5 m / 1 mark.



$$\cot \alpha = 1.5 : 1 / 1 \text{ mark}$$

$$\frac{1}{1.5} = \frac{2.5}{x} / 1 \text{ mark} \quad x = 2.5 \times 1.5$$

$$= 3.75 \text{ m} / 2 \text{ marks}$$

$$\text{then } B = 5.5 + (3.75 \times 2) = 13 \text{ m} / 2 \text{ marks}$$

$$V = \left(\frac{B+b}{2} \right) \times h \times L = \left(\frac{13+5.5}{2} \right) \times 2.5 \times 12 / 1 \text{ mark}$$

$$V = 277.5 \text{ m}^3 / 1 \text{ mark}$$

SECTION C

Q20.

a) long wall - short wall method is used to measure all to find out external length of wall running out-to-out in longitudinal direction and internal wall running in length in-to-in and the quantity will be found by multiplying length, breadth and height. / 5 marks

b) Centre line method is the method where the sum of total length of centre line

of wall have the same type of foundation, footing and wall then the quantity will be found by multiplying the total centre line length by respective breadth and height. For this method require special attention when there is a cross and partition wall that will require deduction or those cross wall and partition wall count twice / 5 marks

c) Partly Centre line and short wall method. This method is used where the thickness of the walls are not the same, the calculation will be made separately by centre line for the walls of the same thickness and others separate wall method. / 5 marks

Q21. Five methods of Valuation

- Rental method of Valuation / 3 marks
- Direct comparison with the Capital Value / 3 marks
- Valuation based on the profit / 3 marks
- Valuation based on the cost / 3 marks
- Development method of Valuation / 3 marks
- Depreciation method of Valuation

Q22. A) Centre line = $(L + W) \times 2$
= $(5.3 + 4.3) \times 2 \text{ m}$
= 19.2 m / 3 marks

First Method

b)

S/N	Particular Item	No	L	w	H/D	unit	Qty
b	Earth work excavation	1	19.2	0.9	1.4	m ³	24.192
c	Cement concrete bed	1	19.2	0.9	0.3	m ³	5.18
d	STONE work in foundation						
	1st footing	1	19.2	0.6	0.5	m ³	5.75
	2nd footing	1	19.2	0.45	0.6	m ³	5.18
							10.93
e	Brick work	1	19.2	0.3	3	m ³	17.28

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2nd method: Long wall, short wall method.

S/N	Particular Item	No	L	B	H/D	unit	Qty
b.	Earthwork in excavation						
	long wall	2	6.2	0.9	1.4	m ³	15.624 / 1 mark
	short wall	2	3.4	0.9	1.4	m ³	8.564 / 1 mark
							24.188 / 1 mark
c.	Cement concrete in foundation						
	long wall	2	6.2	0.9	0.3	m ³	3.348 / 1 mark
	short wall	2	3.4	0.9	0.3	m ³	1.836 / 1 mark
							5.184 / 1 mark
d.	Stone masonry						
	1st footing	2	5.9	0.6	0.5	m ³	3.54 / 1 mark
	long wall	2	3.7	0.6	0.5	m ³	2.22 / 1 mark
	short wall						5.76
	2nd footing	2	5.75	0.45	0.6	m ³	3.165 / 1 mark
	long wall	2	3.85	0.45	0.6	m ³	2.073 / 1 mark
	short wall						5.184
							Total = 10.944 / 1 mark
e.	Brickwork						
	long wall	2	5.6	0.3	3	m ³	10.08 / 1 mark
	short wall	2	3.4	0.3	3	m ³	7.2 / 1 mark
							17.28 / 1 mark

Q.1. Five method of Valuation

1. Rental method of Valuation

1.5 marks

In this method, the net income by way of rent is found out by deducting all outgoing from the gross rent. A suitable rate of interest as prevailing in the market is assumed and Year's purchase is calculated. This net income multiplied by Year's Purchase gives the Capitalized Value or valuation of the property. This method is applicable only when the rent is known or probable rent is determined by enquiry.

1.5 marks

2. Direct comparison with the Capital Value

This method may be adopted when the rental value is not available from the property concerned, but there are evidences of sale price of properties as a whole. In such cases the Capitalized Value of the property is fixed by direct comparison with Capitalized Value of similar property in the locality.

1.5 marks

3. Valuation based on the profit

1.5 marks

This method of valuation is suitable for buildings like hotels, cinemas, theatres etc. for which the Capitalized Value depends on the profit. In such cases, the net income is worked out after deducting gross income, all possible working expense, outgoings, interest on the Capital invested etc. The net profit is multiplied by Year's purchase to get the Capitalized Value. In such cases, the valuation may work out to be high in comparison with the cost of construction.

1.5 mark

4. Valuation base on cost

1.5 marks

In this method, the actual cost incurred in constructing the building or in possessing

The property is taken as a basis to determine the value of a property. In such cases necessary depreciation should be allowed and the points of obsolescence should also be considered. 1.5 marks

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5. Development method of Valuation 1.5 marks
This method of Valuation is used for the properties which are in the under developed or partly developed and partly under developed stage. If a large piece of land is required to be divided into plots after providing for roads, parks etc, this method of Valuation is to be adopted. In such cases, the probable selling price of the divided plots, the area required for roads, parks etc and other expenditures for development should be known. 1.5 marks

6. Depreciation method of Valuation
According to this method of Valuation, the building should be divided into four parts all walls, roofs, the floors, doors and windows and the cost of each part should first be worked out on the present day rates by detailed measurement.

Then the present value of land, water supply, electricity and sanitary fittings should be added to the Valuation of buildings to arrive at total Valuation of property.

Any five elements be enough