SRI VIDYA COLLEGE OF ENGINEERING & TECHNOLOGY

VIRUDHUNAGAR

CE6704 ESTIMATION & QUANTITY SURVEYING

UNIT-IV

VALUATION

QUESTIONS & ANSWERS

PART – A

1. ***Define: Valuation***

Valuation is the process of estimating the cost of a property based on its present condition. The properties may be immovable properties like land, buildings, mines trees quarries etc., and movable properties such as coal, oil, steel, cement, sand etc.

2. ***What are the important factors influencing the value of building? (Nov./Dec.2009), (Apr./May 2008)***
   OR List out the factors to be considered while valuing an existing building.

1. Type of the building
2. Location of the building
3. Expected life of the building
4. Size and shape of the building
5. The Present condition of the building
6. Legal control of the building

3. ***What is the purpose of valuations?***

1. For assessment of wealth tax, property tax etc
2. for fixation of rent
3. for security of loans or mortgage
4. For insurance, betterment charges etc
5. for compulsory acquisition
6. for reinstatement.

4. ***Write the various methods of valuation. (Nov./Dec.2007, 2009, 2011)***

1. Plinth area method
2. Depreciation rate method
3. Rental method

4. Land and building method

5. Development method

5. Write the necessity of valuation.

- Rent fixation. It is generally taken as 6% of the valuation of the property
- For buying and selling
- Acquisition of property by Govt.
- To be mortgaged with bank or any other society to raise loan
- For various taxes to be given and fixed, by the Municipal Committee
- Insurance: For taking out on insurance policies.

6. Define: Floor rate.

It is the ratio between the total built up area (Plinth area) of all floors and the area of the plot.

Floor Area Ratio = Total Plinth area of all floors / Plot area

7. *Define: Plinth area rate.*

It is the ratio between the total present cost of a particular type of building and its plinth area.

Plinth area rate = Total present cost of a building/ plinth area.

8. A property fetches a net income of Rs.900.00 deducting all outgoings. Workout the capitalized value of the property if the rate of interest is 6% per annum.

Year's purchase = 100/6 = 16.67

Capitalized value of the property = net income x Y.P

= 900 x 16.67

= Rs.15003.00

9. A pumping set with a motor has been installed in a building at a cost Rs.2500.00.Assuming the life of the pump as 15 years, workout the amount of annual installment of sinking fund to be deposited to accumulate the whole amount of 4% compound interest.

The annual sinking fund $I = Si/(1+i)^n - 1$

$= 2500 \times 0.04 /(1+0.04)^{15} -1 = Rs.125$

The owner is to deposit Rs.125/-annually in 4% compound interest carrying investment for 15 years to accumulate Rs.2500/-

10. An old building has been purchased by a person at a cost of Rs.30, 000/- excluding the cost of the land. Calculate the amount of annual sinking fund at 4% interest assuming the future life of the building as 20 years and scarp value of the building as 10% of the cost of purchase. (Apr./May 2011)

The total amount of sinking fund to be accumulated at the end of 20 years

$S = 3000x (90/100) = Rs.27000.00$

Annual installments of sinking fund $I = Si/ (1+i)^n - 1$

$= 27000 \times 0.04 /(1+0.04)^{20} -1 = Rs.907.20$

Annual installments for sinking fund requires for 20 years = Rs.907.20

11. Define: the following terms (i) Value (ii) cost (iii) gross income (iv) Net income (v) obsolescence (Nov./ Dec. 2008, 2010)

(i) Value-Present day cost of an engineering structures (saleable value)

(ii) Cost – Original cost of construction. It is used to find out the loss of value of property due to various reasons.

(**iii) Gross income** – Total amount of the income received from the property during the year, without deducting outgoings

(iv) Net come – An amount left at the end of the year after deducting all useable outgoings.

(v) Obsolescence - The value of property decreases if its style and design are outdated i.e rooms not properly set, thick walls, poor ventilation etc. The reason of this is fast changing techniques of construction, design, ideas leading to more comfort etc.

12. Define: the following terms (i) Scrap Value (ii) Salvage value (iii) Capitalized value (Nov./ Dec. 2007, 2009, 2010)

Scrap Value: If a building is to be dismantled after the period its utility is over, some amount can be fetched from the sale of old materials. The amount is known as scrap value of a building. If various from 7% to 10% of the cost of construction according to the availability of the material.

Salvage value: if a property after being discarded at the end of the utility period is sold without being into pieces, the amount thus realized by sale is known as its salvage value.

Capitalized value: It is Defined as that amount of money whose annual interest at

The highest prevailing rate will be equal to the net income received from the property. To calculate the capitalized value, it is necessary to know highest prevailing on such properties and income from the property.

13. Define: sinking fund. (Nov./ Dec. 2007), (May/June 2007)

A fund which is gradually accumulated and set aside to reconstruct the property after the expiry of the period of utility is known as sinking fund. The sinking funds may be found out by taking a sinking fund policy with any insurance company or deposition some amount in the bank. Generally while calculating the sinking fund, life of the building is considered. 90 % of the cost of construction is used for calculations 10 % is left out as scrap value.

Sinking fund (I) = $Si/ (1+i)^n -1$

Where I = Annual installment required

n = Number of year required to create sinking fund

i = Rate of interest expressed in decimal i.e. 5% as 0.05

S = Sinking fund

14. Define: the following terms (i) Market value (ii) Book value. (Nov./ Dec. 2008, 2011), (May/June 2007)

(i) Market value: The market value of a property is the amount, which can be obtained at any particular time from the open market if the property is put for sale. The market value will differ from time to time according to demand and supply.

(ii) Book value: Book value is the amount shown in the account book after allowing necessary depreciations. The book value of a property at a particularly year is the original cost minus the amount of depreciation up to the previous year.

15. Mention the uses of a Project Report. (Nov./ Dec. 2011)

Project-Project means a full scheme consisting of detailed technical report, history design data and calculations, drawings, specifications, rates, project estimates etc. It is the detailed requirements of a proposal or scheme. The project gives full details of all works involved for both structural and financial requirements.

16. What are the supporting details annexure to be provided in the Project report?

(Nov./ Dec. 2011)

- Preliminary investigation
- Surveying
- Selection of site
- Drawings of all works – (Plan, elevation, sectional elevations etc.)
- General Specifications of all works

- Temporary accommodations for staff & workmen (for Big project)'

17. The estimated value of a building is Rs.5,00,000. The carpet area of the building is 70 sq.m If the plinth area is 20% more than this, what is the plinth rate of the building?

Value of building = Rs.5, 00,000

Carpet area = 70 m^2

Plinth area = 20 % more = 1.20 x 70 = 84 m2

Plinth area rate of the building = Value of the building/Plinth area

= 5, 00,000/84 = Rs.5952.38m^2

18. The present value of a property is 20000/- Calculate the standard rent. The rate of interest may be assumed as 6%.

Annual rent @ 6% = 20000x 6 /100 = Rs.1200/-

Standard rent per month = 1200/12 = Rs.1200/12 = Rs.100/-

19. What is Depreciation? (Nov./Dec.2007, 2009), (Apr./May 2008, 2011)

Depreciation is the gradual exhaustion of the usefulness of a property. This may be defined as the decrease or loss in the value of a property due to structural deterioration use, life wear and tear, decay and obsolescence. The value of a building or structure will be gradually reduced due to its use, life, wear and tear, etc.

20. What is Annual Depreciation?

The general annual decrease in the value of a property is known as *Annual depreciation.* Usually, the percentage rate of depreciation is less at the beginning and gradually increases during later years.

21. Write the various methods of depreciation. (Apr./May 2008)

1. Straigth line method
2. Constant percentage basis
3. Quantity survey method
4. Sinking fund method.

22. What is Building cost index? (Nov./Dec.2008)

Building cost index indicate the increase or decrease of the cost above the cost at the certain base year, and is expressed by a percentage rise or fall. Taking 1960 as the base year, the present, (during 1989) *Building Cost India*, may be taken as 360% above the cost during 1970. The cost index depends mainly on the cost of materials, labour transport, etc. and may be above or below according to their

costs. The Public Work Department indicates the present cost at a percentage above or below the printed *Schedule of rates* maintained by the Department.

23. What is prime cost? (Nov./Dec.2008),

Prime cost is the actual cost of articles at shop and refers to the supply of articles only and not to the carrying out of work.

The supply of the articles will be made by the contractor on receiving the instructions and approval of the Engineer-in-charge regarding quality and price. The price to be paid to the contractor for *Prime cost* articles will be actual price paid by him to the merchants, ignoring any cash discount which he might have received. Contractor is not allowed any profit on the' *Prime cost'* articles but he may be allowed actual cost for carriage, if specified. While tendering, the contractor should not alter the amount of *Prime cost,* if he does, such alteration will be ignored.

***24. Define: the following terms (i) Year's purchase (ii) Annuity* (Apr./May 2011)**

Year's purchase: It may be as the figure which when multiplied by the net income from a property gives capitalized value of the property. It can also be Define:d as "a certain amount of capital whose annuity of Rs.1/- at a certain rate of interest can be received"

Year's purchase = 100/rate of interest = 1/i

Annuity: The return of capital investment in the shape of annual installments monthly, quarterly, half yearly &yearly.

25. What is earnest money deposit? (Nov./Dec.2008)

While submitting a tender the contractor is to deposit a certain amount, about 2% of the estimated cost, with the department, as earnest money as guarantee of the tender. This amount is for a check so that the contractor may not refuse to accept the work or run away when his tender is accepted. In case the contractor refuses to take up the work his earnest money is forfeited. Earnest money of the tenderer whose tender has not been accepted is refundable.

26. What is security money deposit? (Nov./Dec.2008).

On acceptance of the tender, the contractor has to deposit 10% of the tendered amount as security money with the department which is inclusive of the earnest money already deposited.

This amount is kept as a check so that the contractor fulfils all the terms and conditions of the contract and carries out the work satisfactorily according to the specifications and maintain progress and completes the work in time. If the contractor fails to fulfill the terms of contract his whole or part of the

security money is forfeited by the department. The security money is refunded to the contractor after the satisfactory completion of the whole work after a specified time, usually after one rainy season or six months of the completion of the work.

27. Find the plinth area required for the residential accommodation for an assistant Engineer in the pay scale of Rs.400.00 to 1,000 per month.

Average pay = 400+1000 /2 = Rs.700/month

Average month rent @10% of salary = 700.00/10 = Rs.70.00

Average annual rent 70.00 x 12 = Rs. 840.00

Capital cost of the building @ 6% interest = 840 x 100 / 6 = Rs.14000.00

Plinth area required @ Rs.150.00 per sq.m of plinth area = 14000/150 = 93.33sq.m

Normally the quarters for the assistant engineer should be constructed at the cost of Rs.14000.00 having plinth area of 93.33 sq.m. But due to the increase in the cost of construction, this may be increased by 100% and the capital cost of construction may be fixed as Rs.28, 000.00 and the approximate plinth areas of 93.33.

PART – B

Calculate the value of years of purchase for a property if its life is 20 years and the rate of interest is 5%. For sinking fund the rate of interest is 4 1/2%.

Solution:

Given

$$R = 0.05$$

$$R_1 = 0.045$$

$$n = 20 \text{ years}$$

Coefficient of sinking fund installments

$$S_c = \frac{R_1}{(1+R_1)^n - 1}$$

$$= \frac{0.045}{(1+0.045)^{20} - 1}$$

$$\boxed{S_c = 0.0319}$$

$$\text{Year purchase } (Y.P) = \frac{1}{0.05 + 0.0319}$$

$$\boxed{Y.P = 12.21}$$

A property has been purchased by a person at a cost of Rs.40000/- excluding the cost of land. Determine the amount of sinking fund annually deposited at the rate of 5% compound interest. Assume the future life of the building as 30 years and scrap value of the building materials as 10% of the cost of purchase.

✍ **Solution:**

Given

$$R = 5\% = 0.05$$

$$n = 30 \text{ years}$$

The total amount of sinking fund to be accumulated at the end of 30 years.

$$S_n = 40000 \times \frac{90}{100}$$

$$\boxed{S_n = \textbf{Rs.36000}}$$

Annual instalment of sinking fund "s" $= \dfrac{S_n \times R}{(1+R)^n - 1}$

$$= \frac{36000 \times 0.05}{(1+0.05)^{30} - 1}$$

$$= \frac{1800}{4.325 - 1}$$

$$= \frac{1800}{3.325}$$

$$= \textbf{Rs.541.35}$$

It is estimated that the capitalised value of a property is Rs.10 lakhs including water, sanitary, electrical installation and the value of land. If the rate of interest is 6% what shall be the net return from the property. Assume the outgoing to be 10% of the gross income find the expected rent of the property per month.

✍ **Solution:**

Given

Capitalised value = Rs.10,00,000/–

Rate of interest = Rs.6%

$$\text{Years purchase} = \frac{10}{6} = 16.67$$

$$\text{Net income} = \frac{\text{Capitalised value}}{\text{years purchase}}$$

$$= \frac{10000000}{16.67}$$

Net income = Rs.60,000/–

Outgoings = 10% of gross income

If net income	Outgoings	Gross income
0.9	0.1	1
Rs.60,000/-	Rs.6667/-	Rs.66667/-

Gross income per year = Rs. 66667/–

$$\text{Rent per month} = \frac{66667}{12}$$

Rent per month = Rs.5556.56

Calculate the annual rent of a building with the following data:

Cost of land = Rs.2,00,000.00/-

Cost of building = Rs.8,00,000.00/-

Estimated life = 80 years

Return expected = 5% on land

6% on building

Annual repairs are expected to be 0.8% of the cost of construction and other outgoings will be 25% of the gross rent. There is no proposal to set up a sinking fund.

✍ **Solution:**

Given

Amount of return required on land @ 5% of Rs.2,00,000 = Rs.10000.00

Amount of return required on building @ 6% of Rs.8,00,000/- = Rs.48,000.0

Net Income = Rs.58,000.00

Let gross rent per annum = x

Amount of annual repairs is 0.8% of Rs.800000/-

Amount for other repairs $= 0.25x$

$$\text{Net income} = (\text{Gross income}) - (\text{outgoings})$$

$$58000 = x - 6400 - 0.25x$$

$$58000 + 6400 = 0.75x$$

$$x = \frac{64400}{0.75}$$

$$x = \text{Rs.}85860 \text{ per annum}$$

$$\text{Rent per month} = \frac{85860}{12}$$

$$\boxed{= \text{Rs.}7155}$$

A residential flat on third floor in multistoreyed building has been let out for an annual rent of Rs.36000/-. The amount of Rs.26000/- levied by the local authority as taxes is to be paid by the tenant. It is further agreed that the expenditure on repairs in respect of the property will be borne by the tenant. If the land is freehold calculate the value of property as per schedule III Part B for section 7(1) of W.T Act. The flat was purchased by the owner with cost of acquisition as Rs.400000/- in 1975.

✍ **Solution:**

Actual rent received by owner as per item (5) (i) = Rs.36000/-

Local taxes paid by tenant as per item 5(1) = Rs.26000/-

Increase due to repairs by

tenant as per item 5(i) (ii) $(1/9 \times 36000)$ = Rs.4000/–

Total = Rs.66000/–

Deduct

1. Local taxes as per item 4 (i) = Rs.26000/–
2. Outgoings as per item 4 (ii) 0.15×66000 = Rs.9900/–

= Rs.35900

Net Maintenance rent as per item 4 = Rs.30100/–

Multiplying factor as per item 3 = 12.5

Value of the property = 12.5×30100 = Rs.376250/–