MP POLYTECHNIC GORAKHPUR

PROFESSIONAL PRACTICE AND VALUATION

content

- Terms
- Objects/purpose of valuation
- Property income
- Depreciation and Obsolescence
- Methods of calculating Depreciation
- Different forms of value
- Factor affecting value of property
- Valuation Tables and their uses
- Valuation methods for property
- Types of rent

Terms

- Cost – The term cost is used to indicate the actual amount incurred in producing a commodity.
- Prime Cost – The expenditures or charges represented directly in the commodity produced are called the prime cost.
- Supplementary cost – Other expenditures or charges like rent, management, services, salaries, depreciation, etc. represented indirectly in the production of the commodity are called the supplementary cost.
- Value – Value means its worth or utility.
- Price – The term price is used to indicate the cost of the commodity plus profit of the manufacturer.

Valuation

- Valuation is the art of estimating or determining the fair price or value of a property such as a building, a factory, other engineering structures, land, etc.
- The value of a property depends on :

I. Nature of structure

II. Life

III. Maintenance

IV. Location

V. Bank interest

VI. Legal control

VII. Supply and demand

VIII. Purpose of valuation

Estimation

- Estimation for any construction work may be defined as the process of calculating the quantities and cost of various items required in connection with the work.
- Purpose of estimation:

I. Preliminary study of the project
II. Administrative approval
III. To investigate feasibility
IV. To get loan from bank
V. For insurance purpose
VI. For deciding taxes
VII. To decide rent of a building

Objects/Purpose of Valuation

- Buying or Selling property
- Security of loans
- Rent fixation
- Insurance
- Taxation
- Compulsory acquisition
- Betterment charges
- Speculation
- Court fees
- Gift tax
- Balance sheet

Property income

- Gross income – The total income from different sources is called gross income.
- Net income – When outgoings are deducted from gross income it is called net income.
- Outgoing – The term outgoing is used to indicate the expenses which are to be incurred in connection with the property so as to maintain the revenue from it.

Depreciation and Obsolescence

Depreciation	Obsolescence
Physical loss in the value of the property due to wear, tear and decay etc. is known as depreciation.	Loss in the value of the property due to change in design, in fashion, in structures, etc. is known as obsolescence.
The decrease in the value of the property is gradual and slow.	The value of property increase or decrease at a rapid rate.
Depreciation depends on its original condition, quality of maintenance and mode of use.	Obsolescence depends on normal progress in the arts, inadequacy to present or growing needs, etc.
This is variable according to the age of the property. More the age, more will be amount for depreciation.	This is not dependent on age of the building. A new building may suffer in its usual rent due to obsolescence.
There are different methods by which the amount of depreciation can be calculated.	At present there is no method of calculation of obsolescence.

Methods of calculating Depreciation

- Straight line method
- Constant percentage method
- Sinking fund method
- Quantity survey method

Straight line method

- In this method it is assumed that the property loses its value by the same amount every year. A fixed amount of the original cost is deducted every year so that at the end of the utility period only the scrap value is left.
- $D = \frac{C-S}{n}$

  D = Annual depreciation

  C = original cost

  S = scrap value

  N = life in year
- Depreciation of the property after m years

  $= \frac{C-S}{n} \times m \quad = m \times D$
- Book value after m years

  $= C - \frac{C-s}{n} \times m \quad = C - m \times D$

Constant percentage method

- In this method it is assumed that the property will lose its value by a constant percentage of tis value at the beginning of every year.

$$p = 1 - \left[\frac{S}{C}\right]^{\frac{1}{n}}$$

p = percentage rate of annual depreciation

S = scrap value

C = original cost

n = life of years

Sinking fund method

- In this method the depreciation of the property is assumed to be equal to the annual sinking fund plus the interest on the sinking fund for that year.
- A= Annual sinking fund
- b,c,d,…etc. = interest on the sinking fund for the subsequent years.
- C= original cost

Life in years	Annual sinking fund	Interest in sinking fund	Depreciation for that year	Total depreciation	Book value
1	A	-	A	A	C –A
2	A	b	A+b	2A+b	C – (2A+b)
3	A	c	A+c	3A+b+c	C – (3A+b+c)
4	A	d	A+d	4A+b+c+d	C – (4A+b+c+d)
					So on…

If i is the rate of interest, annual sinking fund installment to accumulate 1 Rs. In n years.

$$p = \frac{i}{(1+i)^n - 1}$$

If i is the rate of interest and 1 Rs. Is deposited every year total sinking fund accumulated at the end of n years is

$$q = \frac{(1+i)^n - 1}{i}$$

Rate of depreciation in n years

= (p×q)%

The cost of newly constructed building was Rs. 150000. the life of building is 75 years. Determine the depreciation in the 30th year of life by straight line method, constant % method, and sinking fund method at the 8% compound interest. The scarp value of building is 10% of its construction cost.

- C = Rs 150000
- S = 0.10×150000 = 15000 Rs.
- N= 75 years i = 8%

(i) straight line method

$$D = \frac{C-S}{n} = \frac{150000-15000}{75} = 1800\ Rs.$$

- total depreciation after m = 30 years

= 18000×30 = 54000 Rs.

(ii) Constant percentage method

$$p = C\left[\frac{S}{C}\right]^{\frac{m}{n}} = 150000\left[\frac{15000}{150000}\right]^{\frac{30}{75}} = 150000 \times 0.3981 = 59715\ Rs.$$

- Total depreciation after 30 years

(C- S) = 150000 – 59715 = 90285 Rs.

- (iii) sinking fund method

(C – S) = 150000 – 15000 = 135000 Rs.

Sinking fund coefficient for 75 years life

$$p = \frac{i}{(1+i)^n - 1} = \frac{0.08}{(1+0.08)^{75} - 1} = 2.498 \times 10^{-4}$$

$$q = \frac{(1+i)^n - 1}{i} = \frac{(1+0.08)^{30} - 1}{0.08} = 113.28$$

Rate of depreciation for 30 years

$$p \times q = 2.498 \times 10^{-4} \times 113.28 = 0.02829$$

Total depreciation in 30 years

(C – S)×0.02829 = 135000×0.02829 = 3819.15 Rs.

Different forms of value

1. Market value
2. Book value
3. Scrap value
4. Salvage value
5. Accommodation value
6. Distress value
7. Monopoly value
8. Replacement value
9. Investment value
10. Sentimental value
11. Speculative value
12. Annual value
13. Potential value
14. Occupation value
15. Present value

Factors affecting value of a property

- Demand and supply
- Maintenance
- Rise in population
- Abnormal condition
- Cost of construction
- Purpose of purchase
- Town planning Act
- Climatic condition
- Life
- Improvement by public schemes
- Migration
- Interest of schedule banks

Valuation tables and their uses

- In order to save time and reduce the charges of error in elaborate and laborious mathematical calculation the valuation tables are prepared so that by referring to them suitable coefficient can be found out.
- TABLE -1
- To find the amount to which Rs. 1 will accumulate at the end of given number of years

  Let, i = interest per annum on Rs. 1

  Interest of Rs. 1 after 1 years = i
- Amount receivable after 1 year = (1+i)
- Amount receivable after 2 year = (1+ i) + (1 + i) i = 1+i + i +i^2= $(1+i)^2$ Rs.
- For Rs. 1 amount receivable after n years.

  = $(1+i)^n$ $C = (1+i)^n$

- TABLE -2
- To find the present value of Rs. 1 receivable at the end of a given number of years.

$$p = \frac{1}{(1+i)^n}$$

- TABLE -3
- To find the amount of annual sinking fund for the redemption of Rs. 1 capital instalment of S.F.

$$p = \frac{i}{(1+i)^n - 1}$$

- TABLE – 4
- If Rs. 1 is invested every year how much amount will be accumulated after n years

$$q = \frac{(1+i)^n - 1}{i}$$

- Example: join A and B properly

1	On investment of Rs. 1/- amount receivable after 80 years @ 2%	
2	Present value of Rs. 1/- receivable after 70 years @ 3%	
3	Amount receivable after 60 years @ 4% on investment of Rs. 1 every year	
4	Years purchase in 40 years @ 6%	
5	Amount of sinking fund investment for redemption if Rs. 1 capital after 50 years @ 5%	

- (1) On investment of Rs. 1/- amount receivable after 80 years @ 2%

$$= (1 + i)^n = (1 + 0.02)^{80} = 4.8754$$

(2) Present value of Rs. 1/- receivable after 70 years @ 3%

$$p = \frac{1}{(1+i)^n} = \frac{1}{(1+0.03)^{70}} = 0.1263$$

(3) Amount receivable after 60 years @ 4% on investment of Rs. 1 every year

$$q = \frac{(1+i)^n - 1}{i} = \frac{(1+0.04)^{60} - 1}{0.04} = 237.9907$$

- (4) Years purchase in 40 years @ 6%

$$\text{S. F.} = \frac{\text{i}}{(1+\text{i})^{\text{n}}-1} = \frac{0.06}{(1+0.06)^{40}-1} = 0.00646$$

$$Y.P. = \frac{1}{i+S.F.} = \frac{1}{0.06+0.00646} = 15.0463$$

(5) Amount of sinking fund investment for redemption if Rs. 1 capital after 50 years @ 5%

$$\frac{\text{i}}{(1+\text{i})^{\text{n}}-1} = \frac{0.05}{(1+0.05)^{50}-1} = 0.0048$$

1	4.8754
2	0.1263
3	237.99
4	15.0463
5	0.0048

Valuation methods for property and land

- (A) Valuation methods for property

1. Rental method
2. Land and building based method
3. Profit based method
4. Development method

1. Rental method

- In this method the net rental income from a property is calculated after deducting all outgoings from the gross rent and years purchase is calculated after adopting the current bank interest.
- The valuation of a property is worked out as under.
- Capitalized value = Net income ×year's purchase

C.V.= N.I. × Y.P.

Net income = Net rent = Gross Rent – outgoing

When the rent from a property is known this method is useful for valuation of a property.

This present value of land can be obtained as $\frac{1}{(1+i)^n}$

Value of property = value of land + value of building

2. Land and building based method

- Properties which are used for special purpose outside the general range of commercial and residential properties as for school police station or which perform non- profitable community functions where there is no direct evidence of income valuation of such properties are made by this method.
- Valuation for under developed or owner occupied or vacant possession or damaged properties may be done by this method of valuation.
- Cost of new construction of building = total construction area×present rate of construction
- Calculate depreciated cost of building
- Present value of property = cost of land + depreciated cost of building

3. Profit based method

- This method of valuation is very similar to the rental method of valuation and is most applicable in case of valuation of shops, hotels, cinemas, etc.
- In tis method net profit is worked out after deducting all usual outgoings including interest of capital investment and also remuneration of labour rendered by owner.
- Capitalized value = Net income × year's purchase

  C.V. = N.I. ×Y.P.

  Net income = total income - outgoing

4. Development method

- Sometimes undeveloped or under developed property is bought developed and then offered for sale. The valuation of such properties would depend on initial investment development cost and expected profit.
- This method of valuation is based on:

(a) Development of building estates

(b) Hypothetical building schemes

(a) Development of building estates

- In this method an estate is developed with all the essential amenities and sold out in small plots in most advantageous manner so that the estate is worth more. When a city continues too expand then the land is known as Ripe for building.
- Valuation by development of building estates = present value – total outgoings

(b) Hypothetical building schemes

- In this method value of a vacant plot of land is estimated by capitalizing the assumed rent that can be obtained from a building if erected on the land after developing the same and then deducting the cost of development and building.
- This is not a suitable method of valuation of land because the cost of land depends on the magnitude of development of land.

B. Valuation method for open land

1. Comparative method
2. Hypothetical method
3. Belting method

1. Comparative Method

- In this method the various transactions of nearby lands are property studied and then a fair rate of land under consideration is decided.
- Thus this method will be useful only in case of an active market where there are large number of statistics are available for comparison.
- Following factors are to be taken into account while analyzing value of land by this method.

(I) Situation

(II) Size

(III) Shape

(IV) Frontage and depth

(V) Front road width

(VI) Vistas

(VII)Nature of soil

2. Hypothetical Method

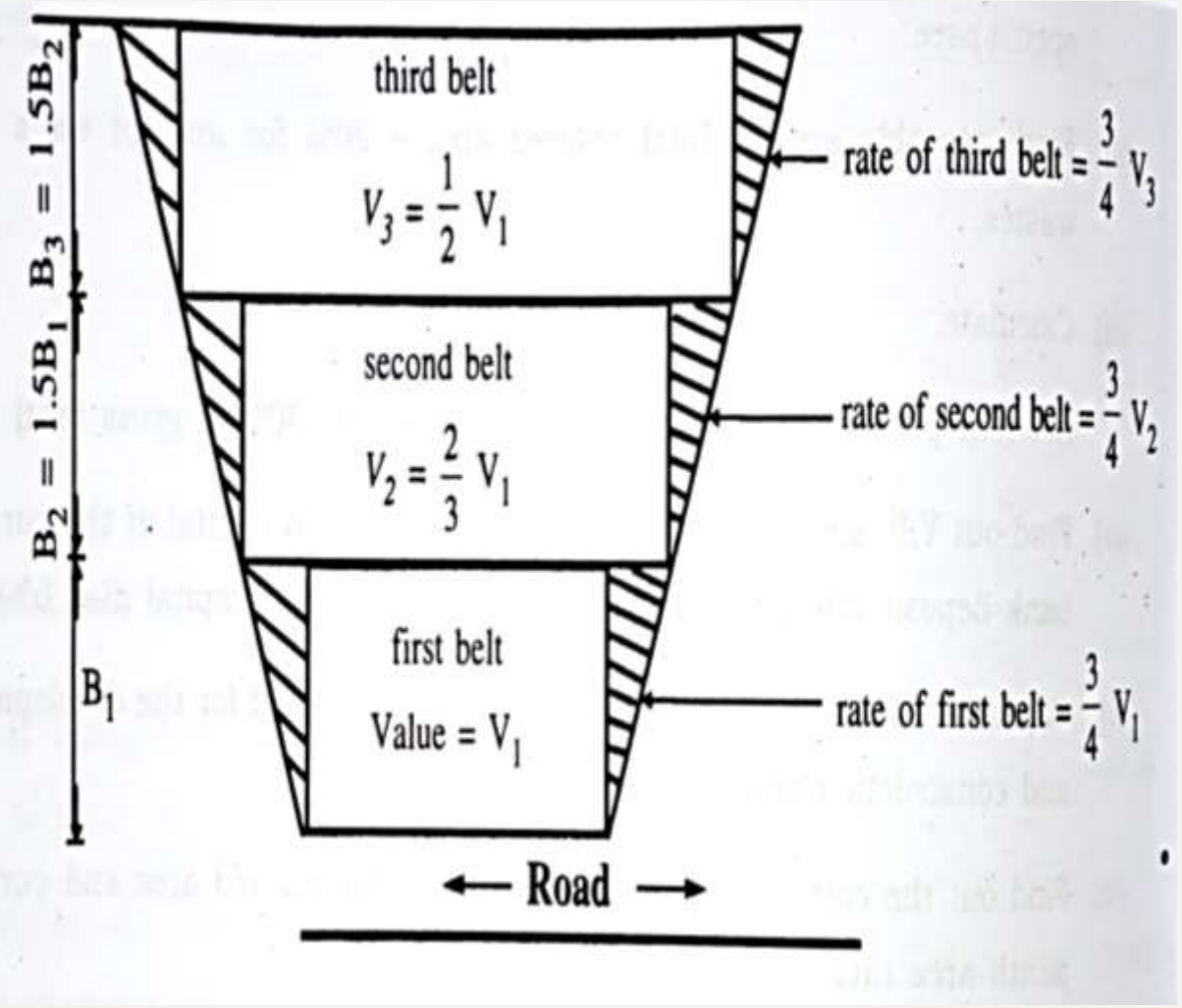
- In this method value of a vacant plot of land is estimated by capitalizing the assumed rent that can be obtained from a building.
- If erected on the land after developing the same and then deducting the cost of development and building.
- This is not a suitable method of valuation of land because the cost of land depends on the magnitude of development of land.

Valuation procedure

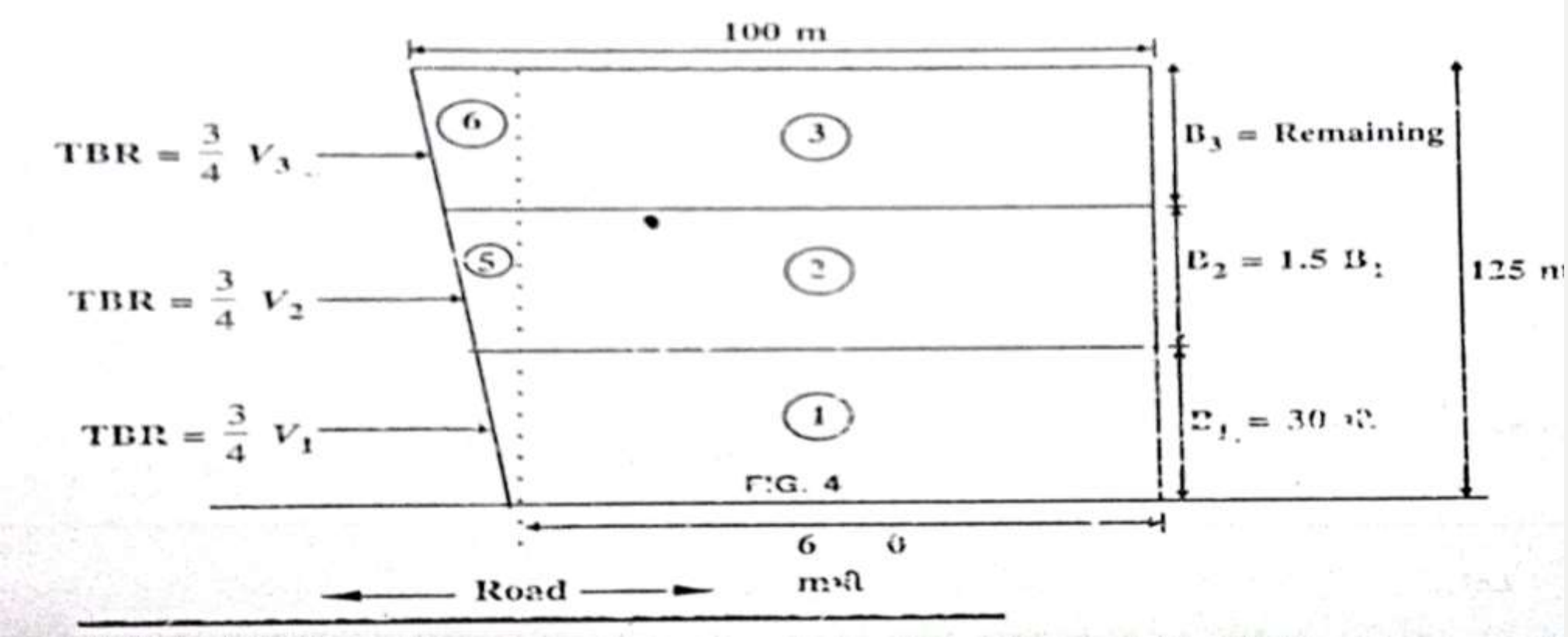
- Permissible covered area = total area – (1/3) area of open space land
- find, rental area = total area – 20 % for area of walls and wastes
- Calculate net rent per month = gross rent – outgoing
- Find out Y.P.
- Find out the cost of building from the total covered area and current plinth area rent.
- Workout the development cost of the land.
- Find out the total cost of building and development cost.
- Deduct the total cost of building and development cost.

3. Belting Method

- When a plot of big size is to be valued or when a plot with less frontage and more depth is to be valued it is logical to adopt the method of belting.
- It is due to the principle that the value of land in general deceases as the plot increases.
- In this method whole area is to be divided into the number of belts.



Example: figure shows the plot of land. If width of first belt is 30 m and its value is estimated to Rs. 100/sq.m. find value of the entire plot by belting method V1,V2,V3 ae the values and B1,B2,B3 are width.



- Let us divide the plot in 6 parts
- Width of first B1 =30 m
- Width of second belt B2 = 1.5×30 = 45m
- Width of third belt B3 = 125 -30 – 45 = 50m
- BB1/30 = 40/125 BB1=9.6m
- CC1/75= 40/125 CC1=24m

Plot no.	Area Sq. m.	Rate per Sq. m.	Value of land Rs.
1	60×30 = 1800	V1 =100	180000
2	60×45 = 2700	V2 = 2/3×100=66.67	180009
3	60× 50 = 3000	V3 = 1/2×100 =50	150000
4	1/2×9.6×30=144	3/4×V1 =3/4×100 =75	10800
5	(9.6 + 24)×45/2 = 756	¾ × V2 = ¾ ×66.67 =50	37800
6	(24 + 40) ×50/2 = 1600	¾ ×V3 = 3/4×50 = 37.5	60000
		Total Rs.	618609

Types of Rent

- Rent: Rent may be defined as an annual or periodic payment for the use of land or building and land.
- Various forms of rent are:

1. Standard rent
2. Head rent
3. Rack rent
4. Situation rent
5. Sitting rent
6. Subsidized rent
7. Improved rent
8. Profit rent
9. Contractual rent
10. Nominal rent
11. Monopoly rent
12. Gross rent
13. Net rent
14. Ground rent


Thank
you