

**COVENANT UNIVERSITY  
NIGERIA**

*TUTORIAL KIT  
OMEGA SEMESTER*

**PROGRAMME: ESTATE  
MANAGEMENT**

**COURSE: ESM 526**

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## ESM 526: PLANT AND MACHINERY VALUATION 11

CONTRIBUTOR: Iroham, O.C. (Ph.D)

1. Discuss the concept of Open Market Operations and its effect on values of Plant and Machinery?
2. A DPB-250GN Flat-plate Automatic Blister Packing Machine manufactured 6 years ago is now out of production. However, suitable market evidence revealed that similar machine with 11 more active years in such state and level of wear and tear sells for ₦2, 795, 435. Value such machine for purpose of floatation
3. Compare and contrast the computational provisions for the various bases of plant and machinery valuation?
4. Calculate the actual sum payable by the insurer of the value at risk on the Plant and Machinery of Zeithbest Services at ₦1, 481, 698, 536. Contents of the factory at the time of an inferno were insured for ₦955, 890, 437. At the time of the peril, it was agreed by both parties that the actual loss sustained is valued at ₦789, 672, 876.
5. Discuss the various policies of Government that affect the number of valuations being carried for plant and machinery?
6. Find the value of a SZG Double Cone Rotary Vacuum Dryer manufactured 12 years ago at a historical cost of N1, 405, 000. Having outlived its useful life, the Dryer is no longer used in the company's operations (Assume price Index from the date of manufacturing is 1.813).
7. Discuss the problems of valuation of plant and machinery in Nigeria.
8. In order to facilitate funding of Seldbest Engineering Nigeria Ltd, value a Liquid Oxygen pump Model BNCP-67-0000 Manufactured 12years ago at a historical cost of ₦2, 625, 835. Although it has a useful life of 10 years, the machine is still in use by the company and is likely to be used for the next production year due to the company's high profile maintenance culture (Assume Price Index to be 2.867).
9. Differentiate between Obsolescence and Depreciation in relation to the useful life of plant and machinery?
10. The Insurance purpose is peculiar in plant and machinery valuation. Discuss
11. An interchangeable plate heat exchanger belonging to Lavid Resort Centre and manufactured 5 years ago still has 7 more years to run. However, a modern version of the machine could transfer heat two and half times more efficiently as much as the earlier model. Information regarding the earlier machine is extinct. Nevertheless, the modern machine supplied two year ago directly from the manufacturer, has a historical cost of ₦946, 534 (Assume Price Index from date of Manufacturing is 1.207). Value the earlier model for the company's Internal Performance Analysis
12. Obsolescence of plant and machinery can occur in various forms. Discuss

13. Define the term “Condition of Average” as applied in insurance valuation of plant and machinery
14. With the aid of a diagram, discuss the division of total insurance into grouping while embarking on plant and machinery valuation
15. On the Basis of Reinstatement, Value a Freeze Drying Machine Model: 3800 belonging to Lakeworld Pharmaceuticals Company. Information from the plant manufacturers in New Zealand Indicates that the Historic cost of the Plant Manufactured in 2009 was \$6855. Other incidental costs for the plant are as follows: Insurance @ 3% of cost, Freight @ 2.5% of cost, Import Duty @ 5% of cost, Port Charges @ 3.5% of cost, Transport and Insurance to site @ 2.5% of cost, Cost of Installation @ 1.25% of cost. Take Inflation rate on plant to be 9.3% and take the plant reconstruction period as 8 Months. (Assume Price Index to be 1.592 and the Plant has a useful life of 12 years, with an Exchange rate put at ₦175 to the Dollar).
16. Assuming you were asked to value the machine in question 15 above on the basis of indemnity, what value would you place on the machine?
17. Discuss the provisions of “Product-dedicated Items’ in the scope of cover for insurance purpose of plant and machinery valuation
18. Depreciation of plant and machinery is an intrinsic loss in value of the asset while obsolescence is an extrinsic loss in value of the said asset. Discuss
19. What are the conditions considered by the valuer before he begins to carry out valuation of obsolete machines?
20. Differentiate between residual and salvage value?

## ANSWERS

### QUESTION TWO

$$D = P(1-r)^n$$

$$r = 200/17 = 11.7647$$

$$r = 0.1176$$

$$D = 2,795,435$$

$$P = D/(1-r)^n$$

$$= \frac{2,795,435}{(1-0.1176)^6}$$

$$\frac{2,795,435}{0.4721}$$

$$GCRC = \text{₦}5,921,277$$

GCRC (₦)	TOT.DEP (₦)	NCRC (₦)	V-I-U (₦)	SALVAGE (₦)	REMARKS
5,921,277	3,125,842	2,795,435	2,089,558	705,877	Fair State

**QUESTION FOUR**

$$\frac{789,672,876 \times 955,890,437}{1,481,698,536}$$

= ~~₦~~ 509,442,867

**QUESTION SIX**

$$1,405,000 \times 1.813 = \text{₦}2,547,265$$
$$200/12=16.67$$
$$D= P(1-r)^n$$
$$= 2,547,265(1-.1667)^{12}$$
$$= \text{₦}285,556$$

**QUESTION EIGHT**

$2,625,835 \times 2.867 = 7,528,269$

$200/10 = 20$

$r = 0.2$

$\text{Salvage Value} = 7,528,269 \times (1-0.2)^{10}$

$7,528,269 \times 0.1074$

$= \text{₦}808,536$

<b>GCRC (₦)</b>	<b>TOT DEP (₦)</b>	<b>NCRC (₦)</b>	<b>V-I-U (₦)</b>	<b>SALVAGE (₦)</b>	<b>REMARK</b>
7,528,269	6517842	1,010,427	201,891 <sup>^</sup> 3% 195834	808,536	Poor State

**QUESTION TEN**

- Insurance valuation is the source of the greatest number of instructions received by valuers as it is willingly requested for by clients (not statutorily engendered of coarsed)
- Insurance valuation is not an end but a means to an end. Required to calculate premium payable
- Insurance valuation is not subject to the known going concern basis of financial valuation and gone concern basis of open market valuation rather it has its own typical bases of indemnity and re-instatement
- Insurance valuation could be undertaken to capture all acclaimed assets of the company of which plant and machinery forms part as against the other purposes

**QUESTION TWELVE**

- Machines that have outlived their useful life
- Machines that are no more producing at its full capacity compared to appropriate substitute
- Machines that have later versions produced to replace them
- Machines that are no more economically viable in production compared to others
- Machines whose design and space consumption are regarded as out of date compared to others

**QUESTION FOURTEEN**

***SPECIFICATION OF INSURANCE***

-In the name of-

**BAJULAWSON ENGINEERING LTD.**

23, Anifowoshe off Adeola Odeku Street

Victoria Island

Lagos

Nigeria

(1)  
On the buildings including landlord's fixtures and fittings therein and thereon and on the walls. Gates and fences around and belonging thereto

(2)  
On machinery, plant and all other contents therein and thereon the property of the insured or held by them in trust for which they are responsible (excluding landlord's fixtures and fittings, stock materials-in-trade)

(3)  
On stock and materials in trade

Item No	Plan No	Description	Col.1 N '000	Col.2 N '000	Col.3 N '000	Total N '000
1	1-4	Machine Shop, Fabrication Shop and Compressor House	165, 000	550, 000	-	715, 000
2	5	Stacking Area	3,000	9,000	23, 000	35, 000
3	6-9	Offices and Canteen	45, 000	16, 000	-	61, 000
4	10(a)	Gate House	2, 000	600	-	2, 600
5	10(b)	Generator House	1, 500	12, 000	-	13, 500
6	12,13&18	Heavy Machine Shop	265, 000	375, 000	-	640, 000
7	14-17	Foundry	120, 00	66, 000	-	186, 000
TOTAL			601, 500	<b>1, 028, 600</b>	23, 000	1, 653, 000

From an extract of specification as showcased above, it is evident that insurance policies of companies cover certain assets such as land and buildings, machineries and stocks amongst other classifications as prescribed. From extract above one can easily see that in each location certain premium had been paid for the insurance cover for the various asset. Thus, the insurance premium for plant and machinery so far is in the tune of N1, 028, 600.

The content of the valuation will be stated in the specification as shown above and the valuation must be prepared strictly in accordance with the details of the specification. The extract is typical

of the content of an insurance covering plant and machinery, and as a general rule the valuation should include all items that are at risk from insured perils and are the property or the responsibility of the insured, apart from buildings, stock and materials-in-trade. Items generally regarded as landlord's fixtures and fittings will be insured with the buildings rather than the plant and machinery. Any doubt about what should be designated building or plant and machinery should be discussed as agreed with the client or his insurance broker. Where a surveyor is instructed to classify as plant and machinery an item, which should be part of the building he must make a note of this in his report.

**QUESTION SIXTEEN**  
**INDENMITY BASIS**

Basic Plant Cost (say)	=	₦, 1, 909, 803
<u>Depreciation</u>		
Total Depreciation	=	₦ 1, 142, 449
Basic Plant Cost (Dep)	=	₦ 767, 354
<u>Other Incidental Costs</u>		
Insurance	=	₦ 57, 294
Freight	=	₦47, 745
Import Duty	=	₦95, 490
Port Charges	=	₦66, 843
Transport and Insurance to site	=	₦47, 745
Cost of Installation	=	₦23, 873
<b>Net Current Replacement Cost</b>	=	<b>₦1, 106, 344</b>

**QUESTION EIGHTEEN**

As a machine is being manufactured depreciation commences immediately while usage of such machine results in further depreciation. Hence, depreciation can be regarded as a price for existence for machines. Obsolescence on the other hand can only occur when there are other assets to use as comparison.

**QUESTION TWENTY**

There is a thin line between salvage and residual value as they both mean the same thing. However, salvage value is used most times to represent the value of the asset at the end of its useful life while residual value is used for values of obsolete machines in general. It could describe the value of the machine at the end of its useful life but which is still used in operation etc.