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Test II

CH4025 - PROJECT ENGINEERING

Duration: 1 hour Date:09.04.2015 Maximum Marks: [20]

Instructions: For example "Answer *all* questions"

1. What do you meant by Depreciation? Explain the method of Declining Balance [2]
2. Discuss about the various ratio factors utilized in the order of magnitude cost estimation. [3]
3. The annual fixed cost for a plant is Rs.20 lakh and variable cost is 36 lakh at 60% capacity the net sales at that capacity is 60 lakh. Find the BEP. If 70% of product produced is sold locally at the above prices and remaining 30% dumped abroad at 10% more than the variable cost involved in their production, estimate the gross profit earned by the company. [3]

4. A concern has a total income of Rs.1 million/year, and all expenses except depreciation amount to Rs.6,00,000/year. At the start of the first year of the concern's operation, a composite account of all depreciable items shows a value of Rs.8,50,000 and the service life is estimated to be 20 years. The total salvage value at the end of the service life is estimated to be Rs.50,000. 45% of all profits before taxes must be paid out as income taxes. What would be the reduction in income taxes charge for the first year of the operation if the sum of year's digits method was used instead of the straight line method? [4]

5. Edelman Engineering is considering including two pieces of equipment, a truck and an overhead pulley system, in this year's capital budget. The projects are independent. The cash outlay for the truck is Rs.17,100 and that for the pulley system is Rs.22,430. The firm's cost of capital is 14%. After-tax cash flows, including depreciation, are as follows:

Year	Truck	Pulley
1	5,100	7,500
2	5,100	7,500
3	5,100	7,500
4	5,100	7,500
5	5,100	7,500

Calculate the IRR, and the NPV, for each project, and indicate the correct accept or reject decision for each. DCF [5]

6. Discuss about the various ratio factors utilized in the order of magnitude cost estimation. The following maintenance job has to be performed periodically on the heat exchanger in a refinery:

Activity	Task	Precedence	Duration (hr)
A	Dismantle pipe connection	-	14
B	Dismantle header	A	22
C	Remove the bundle	B	10
D	Clean bolts	B	16
E	Clean header	B	12
F	Clean tube bundle	C	10
G	Clean shell	C	6
H	Replace tube bundle	F,G	8
I	Prepare shell pressure test	D,E,G,H	24
J	Prepare tube pressure test and make reassembly	I	16

a) Draw an arrow diagram for this project.
b) Identify the critical activities. What is the length of critical path?