Current book value of old machine engineering essay

Engineering

The Nobel Dynamite Company is considering a new packing machine. The existing packing machine cost $500, 000 five years ago and is being depreciated @ 20% using WDV over a 10-year life. Nobel’s management estimates that the old machine can be sold for $100, 000. The new machine costs $600, 000 and would be depreciated @ 40% over five years using WDV. There is no salvage value for the new machine. The new machine is more efficient and would reduce packing expenses (damaged goods) by $120, 000 per year for the next five years. The marginal tax rate is 30%. Compute the following: Net incremental cash flows for the projectCompute the NPV and IRR of the project for project acceptance at 10% hurdleGiven Data

OldNewInitial Price500, 000600, 000Salvage Value100, 0000Life105Depreciation20%40%Current Book Value of Old Machine =$163840Capital Gains =-$63, 840Capital Gains Tax =-$19152Calculation For Incremental Depreciation: Depreciation12345Old3276826214. 420971. 5216777. 2213421. 77New2400001440008640051840311041ncremental(New-Old)207232117785. 665428. 4835062. 7817682. 23Calculation

012345EBITDA(Revenue-Expenses)0120, 000120, 000120, 000120, 000120, 000Depreciation0207232117785. 665428. 4835062. 7817682. 23EBIT0-872322214. 454571. 5284937. 22102317. 8Tax0-26169. 6664. 3216371. 4625481. 1630695. 33PAT0-61062. 41550. 0838200. 0659456. 0571622. 44Add Back Depreciation0207232117785. 665428. 4835062. 7817682. 23CAPEX-500, 00000000Capital Gains Tax-1915200000Net Cash Flow

(PAT+Dep+CAPEX-CGT)-480, 848146, 170119, 336103, 62994, 51989, 305NPV=-51, 475. 54

Hence Incremental Cash Flows are :

Year -> 012345Net Cash Flow-$480, 848$146, 170$119, 336$103, 629$94, 519$89, 305NPV = -$51, 475. 54

IRR Calculation :

0 = -480, 848 + 146, 17/(1+r)+119, 336(1+r)^2+103, 629/(1+r)^3+94, 519(1+r)^4+89, 305(1+r)^5By Hit and TrialNPV at r as 5% = 3855. 24NPV at r as 6% = -8132. 46Hence r = 5% + 3855. 24/(3855. 24+8132. 46) = 5. 32%IRR = 5. 32%The J. J. Hill Company is considering new digging equipmentmachine. The existing digging equipment cost $1, 000, 000 fiveyears ago and is being depreciated @ 20% using WDV. Hill's management estimates the old equipment can be sold for $200, 000. The new equipment costs$1, 200, 000 and would be depreciated over five years usingWDV. At the end of the fifth year, Hill's management intendsto sell the new equipment for $400, 000. The new equipment ismore efficient and would reduce expenses by $200, 000 per year for the next five years. The marginal tax rate is 35%. Compute the following: Net incremental cash flows for the projectCompute the NPV and IRR of the project for project acceptance at 10% hurdleGiven Data

OldNewInitial Price$1, 000, 000. 00$1, 200, 000. 00Salvage Value$200, 000. 00$400, 000. 00Life105Depreciation20%20%Current Book Value of Old Machine

=

$327, 680. 00Capital Gains

=

-$127, 680. 00Capital Gains Tax

=

-$44, 688. 00Book Value of New Machine After 5 years

=

$393, 216. 00Capital Gains

=

$6, 784. 00Capital Gains Tax

=

$2, 374. 40Calculation For Incremental Depreciation:

Depreciation12345Old$65, 536. 00$52, 428. 80$41, 943. 04$33, 554. 43$26, 843. 55New$240, 000. 00$192, 000. 00$153, 600. 00$122, 880. 00$98, 304. 00Incremental(New-Old)$174, 464. 00$139, 571. 20$111, 656. 96$89, 325. 57$71, 460. 45Calculation

012345EBITDA(Revenue-Expenses)$0. 00$200, 000. 00$200, 000. 00$200, 000. 00$200, 000. 00$200, 000. 00Depreciation$0. 00$174, 464. 00$139, 571. 20$111, 656. 96$89, 325. 57$71, 460. 45EBIT$0. 00$25, 536. 00$60, 428. 80$88, 343. 04$110, 674. 43$128, 539. 55Tax$0. 00$8, 937. 60$21, 150. 08$30, 920. 06$38, 736. 05$44, 988. 84PAT$0. 00$16, 598. 40$39, 278. 72$57, 422. 98$71, 938. 38$83, 550. 70Add Back Depreciation$0.

00$174, 464. 00$139, 571. 20$111, 656. 96$89, 325. 57$71, 460. 45CAPEX-$1, 000, 000. 00$0. 00$0. 00$0. 00$0. 00$400, 000. 00Capital Gains Tax-$44, 688. 00$0. 00$0. 00$0. 00$0. 00$2, 374. 40Net Cash Flow (PAT+Dep+CAPEX-CGT)-$955, 312. 00$191, 062. 40$178, 849. 92$169, 079. 94$161, 263. 95$552, 636. 76NPV=-$53, 487. 40

Hence Incremental Cash Flows are :

Year -> 012345Net Cash Flow-$955, 312. 00$191, 062. 40$178, 849. 92$169, 079. 94$161, 263. 95$552, 636. 76NPV = -$53, 487. 40

IRR Calculation :

0 = -955, 312. 00 + 191062. 4/(1+r) + 178849. 92(1+r)^2 + 169079. 94/(1+r)^3 + 161263. 95(1+r)^4 + 552, 636. 76(1+r)^5By Hit and TrialNPV at r as 8% = 3802. 13NPV at r as 9% = -25511. 5Hence r = 8% +3802. 13/(3802. 13+25511. 5) = 8. 13%Thus IRR = 8. 13%The NeaterMaid Cleaning Service Company is consideringreplacing its existing cleaning equipment. The existing equipment cost $100, 000 five years ago and was depreciated @ 40% usingWDV. The management of Neater Maid estimates the old equipment can be sold for $10, 000. The newequipment costs $120, 000 and would be depreciated @ 40% usingWDV. At the end of five years, Neater Maid’s management expects to sell the new equipment for $20, 000. The new equipment is more efficient and would reduce expenses by $20, 000 per year for the next five years. Themarginal tax rate is 30%. Compute the following: Net incremental cash flows for the projectCompute the NPV and IRR of the project for project acceptance at 10% hurdleGiven Data

OldNewInitial Price$100, 000. 00$120, 000. 00Salvage Value$10, 000. 00$20, 000. 00Life105Depreciation40%40%Current Book Value of Old Machine

=

$7, 776. 00Capital Gains

=

$2, 224. 00Capital Gains Tax

=

$667. 20Book Value of New Machine After 5 years

=

$9, 331. 20Capital Gains

=

$10, 668. 80Capital Gains Tax

=

$3, 200. 64Calculation For Incremental Depreciation:

Depreciation12345Old$3, 110. 40$1, 866. 24$1, 119. 74$671. 85$403. 11New$48, 000. 00$28, 800. 00$17, 280. 00$10, 368. 00$6, 220. 80Incremental(New-Old)$44, 889. 60$26, 933. 76$16, 160. 26$9, 696. 15$5, 817. 69Calculation

012345EBITDA(Revenue-Expenses)$0. 00$20, 000. 00$20, 000. 00$20, 000. 00$20, 000. 00$20, 000. 00Depreciation$0. 00$44, 889. 60$26, 933. 76$16, 160. 26$9, 696. 15$5, 817. 69EBIT$0. 00-$24, 889. 60-$6, 933. 76$3, 839.

74$10, 303. 85$14, 182. 31Tax$0. 00-$7, 466. 88-$2, 080. 13$1, 151. 92$3, 091. 15$4, 254. 69PAT$0. 00-$17, 422. 72-$4, 853. 63$2, 687. 82$7, 212. 69$9, 927. 62Add Back Depreciation$0. 00$44, 889. 60$26, 933. 76$16, 160. 26$9, 696. 15$5, 817. 69CAPEX-$110, 000. 00$0. 00$0. 00$0. 00$0. 00$20, 000. 00Capital Gains Tax$667. 20$0. 00$0. 00$0. 00$0. 00$3, 200. 64Net Cash Flow (PAT+Dep+CAPEX-CGT)-$110, 667. 20$27, 466. 88$22, 080. 13$18, 848. 08$16, 908. 85$32, 544. 67NPV=-$21, 531. 78

Hence Incremental Cash Flows are:

Year -> 012345Net Cash Flow-$110, 667. 20$27, 466. 88$22, 080. 13$18, 848. 08$16, 908. 85$32, 544. 67Net Present Value = -$21, 531. 78

IRR Calculation:

0 = -$110, 667. 20 + $27, 466. 88/(1+r) + $22, 080. 13/(1+r)^2 + $18, 848. 08/(1+r)^3 + $16, 908. 85/(1+r)^4 + $32, 544. 67/(1+r)^5By Hit and TrialNPV at r as 2% = 342. 68NPV at r as 3% = -2842. 4Hence r = 2% +342. 68/(342. 68+2842. 4) = 2. 11%Thus IRR = 2. 11%The president of Cook Airlines has asked you to evaluate the proposed acquisition of a new jet. The jet’s price is $40 million, and it is depreciable @ 20% WDV. The purchase of the jet would require an increase in net working capital of $200, 000. The jet would increase the firm’s before-tax revenues by $20 million per year but would also increase operating costs by $5 million per year. The jet is expected to be used for three years and then sold for $25 million. The firm’s marginal tax rate is 40%. Compute the following: Net incremental cash flows for the projectCompute the NPV and IRR of the project for project acceptance at 10% hurdleGiven DataPrice$40, 000, 000.

00Depreciation20%Life3Salvage Value$25, 000, 000. 00Marginal Tax Rate30. 00%Book Value of Jet after 3 years

=

$20, 480, 000. 00Capital Gains

=

$4, 520, 000. 00Capital Gains Tax

=

$1, 356, 000. 00Calculation For Depreciation: Year123Depreciation$8, 000, 000. 00$6, 400, 000. 00$5, 120, 000. 00CalculationsYear0123Revenue$0. 00$20, 000, 000. 00$20, 000, 000. 00$20, 000, 000. 00Cost$0. 00$5, 000, 000. 00$5, 000, 000. 00$5, 000, 000. 00EBITDA$0. 00$15, 000, 000. 00$15, 000, 000. 00$15, 000, 000. 00Depreciation$0. 00$8, 000, 000. 00$6, 400, 000. 00$5, 120, 000. 00EBIT$0. 00$7, 000, 000. 00$8, 600, 000. 00$9, 880, 000. 00Tax$0. 00$2, 100, 000. 00$2, 580, 000. 00$2, 964, 000. 00PAT$0. 00$4, 900, 000. 00$6, 020, 000. 00$6, 916, 000. 00Add Back Depreciation$0. 00$8, 000, 000. 00$6, 400, 000. 00$5, 120, 000. 00CAPEX-$40, 000, 000. 00$0. 00$0. 00$0. 00Increase in Working Capital$200, 000. 00$0. 00$0. 00-$200, 000. 00Salvage Value$0. 00

$25, 000, 000. 00Capital GainsTax

$1, 356, 000. 00Net Cash Flow (PAT+Dep+CAPEX+Salvage Value-CGT-Inc in Work Capital)-$40, 200, 000. 00$12, 900, 000. 00$12, 420, 000. 00$35, 880, 000. 00NPV$8, 748, 910. 59

Hencre Incremental Cash Flows are:

Year -> 0123Net Cash Flow-$40, 200, 000. 00$12, 900, 000. 00$12, 420, 000. 00$35, 880, 000. 00Net Present Value = $8, 598, 647. 63

IRR Calculation:

0 = -40, 200, 000. 00 + 12, 900, 000. 00/(1+r) + 12, 420, 000. 00/(1+r)^2 + 35, 880, 000. 00/(1+r)^3By Hit and TrialNPV at r as 20% = -61111. 11NPV at r as 19% = 702662. 60r = 19% + 702662. 60/(61111. 11+702662. 60) = 19. 92%Hence IRR = 19. 92%