

## Capital budgeting

### تمارين محلولة / اعداد الموازنات الرأسمالية

#### المجموعة الاولى: الصح والخطأ مع تصحيح العبارة الخاطئة:

**Q1/** A capital budget spans only a one-year period.

**Answer: False**

**Explanation:** A capital budget normally is for a period of time greater than one year.

**Q2/** The identify projects stage of capital budgeting gathers information from all parts of the value chain to evaluate alternative projects.

**Answer: False**

**Explanation:** This is the definition of the obtain information stage.

**Q3/** The obtain information stage of capital budgeting gathers information from all parts of the value chain to evaluate alternative projects.

**Answer: True**

**Q4/** The make decisions by choosing among alternatives stage of the capital budgeting process consists of determining which investment yields the greatest benefit and the least cost to the organization.

**Answer: True**

**Q5/** The make predictions stage of the capital budgeting process consists of forecasting all potential net income additions that are attributable to the alternative projects.

**Answer: False**

**Explanation:** The make predictions stage of the capital budgeting process consists of forecasting all potential *cash flows* attributable to the alternative projects.

**Q6/** Discounted cash flow methods measure all the expected future cash inflows and outflows of a project as if they occurred at equal intervals over the life of the project.

**Answer: False**

**Explanation:** As if they occurred at a single point in time.

**Q7/** Discounted cash flow methods focus on operating income

**Answer: False**

**Explanation:** Discounted cash flow methods focus on cash inflows and cash outflows.

**Q8/** The three common discounted cash flow methods are net present value, internal rate of return, and payback.

**Answer: False**

**Explanation:** The two common discounted cash flow methods are net present value and internal rate of return. The traditional payback method is not a discounted cash flow method.

**Q9/** The net present value method calculates the expected monetary gain or loss from a project by discounting all expected future cash inflows and outflows to the present point in time using the hurdle rate.

**Answer: True**

**Q10/** Internal rate of return is a method of calculating the expected net monetary gain or loss from a project by discounting all expected future cash inflows and outflows to the present point in time.

**Answer: False**

**Explanation:** The internal rate of return calculates the discount rate at which the present value of expected cash inflows from a project equals the present value of expected cash outflows.

**Q11/** A capital budgeting project is accepted if the required rate of return equals or exceeds the internal rate of return.

**Answer: False**

**Explanation:** A capital budgeting project is accepted if the internal rate of return equals or exceeds the required internal rate of return.

**Q12/** The accrual accounting rate of return is the method that is based most closely on the information in the financial statements.

**Answer: True**

**Q13/** The accrual accounting rate-of-return method is similar to the internal rate-of-return method because both methods calculate a rate-of-return percentage.

**Answer: True**

**Q14/** Managers using discounted cash flow methods to make capital budgeting decisions make the same decisions that they would make in using the accrual accounting rate-of-return methods.

**Answer: False**

**Explanation:** Managers using discounted cash flow methods to make capital budgeting decisions make different decisions that they would make in using the accrual accounting rate-of-return methods.

**Q15/** A decrease in the tax rate will decrease the net present value (NPV) for a given capital budgeting project.

**Answer: False**

**Explanation:** A decrease in the tax rate will increase the net present value (NPV) for a given capital budgeting project.

المجموعة الثانية: خيارات متعددة:

**Q1/** The stage of the capital budgeting process that distinguishes which types of capital expenditure projects are necessary to accomplish organization objectives is the:

- A) identify projects stage
- B) make predictions stage
- C) obtain information stage
- D) make decisions by choosing among alternatives stage

Answer: A

**Q2/** The two factors capital budgeting emphasizes are:

- A) qualitative and nonfinancial
- B) quantitative and nonfinancial
- C) quantitative and financial
- D) qualitative and financial

Answer: C

**Q3/** Discounted cash flow methods for capital budgeting focus on:

- A) cash inflows
- B) operating income
- C) cash outflows
- D) Both A and C are correct.

Answer: D

**Q4/** Net present value is calculated using the:

- A) internal rate of return
- B) required rate of return
- C) rate of return required by the investment bankers
- D) None of these answers is correct.

Answer: B

**Q5/** The capital budgeting method which calculates the expected monetary gain or loss from a project by discounting all expected future cash inflows and outflows to the present point in time using the required rate of return is the:

- A) payback method
- B) accrual accounting rate-of-return method
- C) sensitivity method
- D) net present value method

Answer: D

**Q6/** Assume your goal in life is to retire with one million dollars. How much would you need to save at the end of each year if interest rates average 6% and you have a 20-year work life?

- A) \$14,565
- B) \$27,184
- C) \$120,102
- D) \$376,476

Answer: B

Explanation:  $B) S (36.786) = \$1,000,000$   
 $S = \$ 27,184.25$

**Q7/** Investment A requires a net investment of \$800,000. The required rate of return is 12% for the four-year annuity. What are the annual cash inflows if the net present value equals 0? (rounded).

- A) \$189,483
- B) \$263,418
- C) \$274,848
- D) \$ 295,733

Answer: B

Explanation:  $B) 3.037 \times ACI - \$800,000 = \$0$   
 $= \$263,418$

**Q8/** Upper Darby Park Department is considering a new capital investment. The following information is available on the investment. The cost of the machine will be \$144,192. The annual cost savings if the new machine is acquired will be \$40,000. The machine will have a 5-year life, at which time the terminal disposal value is expected to be zero. Upper Darby Park is assuming no tax consequences. Upper Darby Park has a 10% required rate of return. What is the payback period on this investment?

- A) 3 years
- B) 3.6 years
- C) 4.2 years
- D) 5 years

Answer: B

Explanation:  $D) \$144,192/\$40,000 = 3.6 \text{ years.}$

المجموعة الثالثة: تمارين محلولة:

**Q1/** Hawkeye Cleaners has been considering the purchase of an industrial dry-cleaning machine. The existing machine is operable for three more years and will have a zero disposal price. If the machine is disposed now, it may be sold for \$60,000. The new machine will cost \$200,000 and an additional cash investment in working capital of \$60,000 will be required. The new machine will reduce the average amount of time required to wash clothing and will decrease labor costs. The investment is expected to net \$50,000 in additional cash inflows during the year of acquisition and \$150,000 each additional year of use. The new machine has a three-year life, and zero disposal value. These cash flows will generally occur throughout the year and are recognized at the end of each year. Income taxes are not considered in this problem. The working capital investment will not be recovered at the end of the asset's life.

- What is the net present value of the investment, assuming the required rate of return is 10%? Would the company want to purchase the new machine?

- A) \$82,000; yes
- B) \$50,000; no
- C) \$(50,000); yes
- D) \$(82,000); no

Answer: A

Explanation:	A) Yr. 0	(\$60,000 - \$200,000 - \$60,000) × 1.000 =	\$(200,000)
	Yr. 1	\$50,000 × 0.909 =	45,450
	Yr. 2	\$150,000 × 0.826 =	123,900
	Yr. 3	\$150,000 × 0.751 =	<u>112,650</u>
			<u>\$ 82,000</u>

- What is the net present value of the investment, assuming the required rate of return is 24%? Would the company want to purchase the new machine?

- A) \$(32,800); yes
- B) \$(16,400); no
- C) \$16,400; yes
- D) \$32,800; no

Answer: C

Explanation:	C) Yr. 0	(\$60,000 - \$200,000 - \$60,000) × 1.000 =	\$(200,000)
	Yr. 1	\$ 50,000 × 0.806 =	40,300
	Yr. 2	\$150,000 × 0.650 =	97,500
	Yr. 3	\$150,000 × 0.524 =	<u>78,600</u>
			<u>\$ 16,400</u>

**Q2/** Jonesville Hospital has been considering the purchase of a new x-ray machine. The existing machine is operable for five more years and will have a zero disposal price. If the machine is disposed now, it may be sold for \$45,000. The new machine will cost \$325,000 and an additional cash investment in working capital of \$10,000 will be required. The new machine will reduce the average amount of time required to take the x-rays and will allow an additional amount of business to be done at the hospital. The investment is expected to net \$30,000 in additional cash inflows during the year of acquisition and \$115,000 each additional year of use. The new machine has a five-year life, and zero disposal value. These cash flows will generally occur throughout the year and are recognized at the end of each year. Income taxes are not considered in this problem. The working capital investment will not be recovered at the end of the asset's life.

- What is the net present value of the investment, assuming the required rate of return is 12%? Would the hospital want to purchase the new machine?

- A) \$(48,670); no
- B) \$25,715; no
- C) \$ 48,670; yes
- D) \$83,415; yes

Answer: C

Explanation:	C) Yr. 0	(\$45,000 - \$325,000 - \$10,000) × 1.000 =	\$(290,000)
	Yr. 1	\$ 30,000 × 0.893 =	26,790
	Yr. 2	\$115,000 × 0.797 =	91,655
	Yr. 3	\$115,000 × 0.712 =	81,880
	Yr. 4	\$115,000 × 0.636 =	73,140
	Yr. 5	\$115,000 × 0.567 =	<u>65,205</u>
			<u>\$ 48,670</u>

- What is the net present value of the investment, assuming the required rate of return is 20%? Would the hospital want to purchase the new machine?

- A) \$16,955; yes
- B) \$(16,955); no
- C) \$(16,955); yes
- D) \$25,350; yes

Answer: B

Explanation:	B) Yr. 0	(\$45,000 - \$325,000 - \$10,000) × 1.000 =	\$(290,000)
	Yr. 1	\$ 30,000 × 0.833 =	24,990
	Yr. 2	\$115,000 × 0.694 =	79,810
	Yr. 3	\$115,000 × 0.579 =	66,585
	Yr. 4	\$115,000 × 0.482 =	55,430
	Yr. 5	\$115,000 × 0.402 =	<u>46,230</u>
			<u>\$(16,955)</u>