ECO1192 Winter 2016 – Théoret

Midterm 1 Pink

1. The world is entirely without risk and inflation. You buy a 10-year financial asset for $20 000 which pays interest at 10% each year and your investment is fully reimbursed at its maturity (i.e., after 10 years). If you can fully invest the annual interest income paid each year at 10%, the net future worth ($) of your investment is given by
    a. $20 000
    b. $0
    c. $20 000 (F/P, 10%, 10)
2. If a project's IRR is equal to MARR, then MARR=IRR=ERR.
    a. Only if the project if of infinite duration (life)
    b. Never.
    c. Always
    d. Depends on the project's pattern of annual cash flows
3. If a rate of interest is defined as 24% compounded monthly, the effective (annual) rate of interest (nearest 2 decimals) is
    a. 24.00%
    b. None of these answers.
    c. 26.82%
    d. 2.00%

Decision Criteria Table		
Details	Project A	Project B
Initial cost (January 1, 2013)	$200 000	
Market Value on January 1, 2015	$100 000	300 000
Economic Life from January 1, 2015	5 years	10
Revenue	$70 000 annually	90 000 annually
Operating Cost	$30 000	35 000 in 2015 followed by annual increases of $1 000 (e.g., 36 000 in 2016; 37 000 in 2017, etc.)
Salvage Value	$0 beginning in December 2015	40 000 on December 2015 and 2016; $0 thereafter
MARR (%)	10	10
Physical life from January 1, 2015	8	15

4. **Refer to the Decision Criteria Table.** The incremental internal rate of return (i**) between projects A and B is given by
    a. -2000 000(A/F,i**,5)+40 000
    =-300 000(A/P,i**,10)+55 000-1 000(A/G,i**,10)+40 000(A/F,10%,10)
    b. -100 000(A/P,i**,5)+40 000
    =-150 000(A/P,i**,10)+35 000-1 000(A/G,i**,10)
    c. -100 000(A/F,i**,5)+40 000
    =-300 000(A/P,i**,10)+55 000-1 000(A/G,i**,10)

d. -100 000[1+(P/F,10%,5)](F/P,i**,10)+40 000(F/A,i**%,10)
=-300 000(F/P,i**,10)+55 000(F/A,i**%)-1 000(F/G,i**%,10)

5. **Refer to the Decision Criteria Table.** Based on the Discounted Rayback Method and a 10% MARR, project A's "project balance" at the end of the second year is
   a. -70 000
   b. -100 000
   c. -37 000
   d. +30 000
6. **Refer to the Decision Criteria Table.** Project B's Net Future Worth (NFW) is given by
   a. -300 000(P/F,10%,10)+(90 000-35 000)(P/A,10%,10)+1 000(P/G,10%,10)
   b. -300 000(F/P,10%,10)+(90 000-35 000)(F/A,10%,10)-1 000(F/G,10%,10)
   c. -300 000(F/P,10%,10)+(90 000-35 000)(F/A,10%,10)+1 000(F/G,10%,10)
   d. -300 000+(90 000-35 000)(F/A,10%,10)-1 000(A/G,10%,10)
7. **Refer to the Decision Criteria Table.** Based on the Simple Payback Method, project B's opportunity cost in the second year is
   a. 75 000
   b. 40 000
   c. $0
   d. 20 000
8. **Refer to the Decision Criteria Table.** Project A's Eternal Rate of Return (i*) is given by
   a. -200 000(A/P,i*%,5)+(70 000-30 000) = 0
   b. -200 000(F/P,i*%,5)+(70 000-30 000)(F/A,i*%,5) = 0
   c. -200 000(F/P,i*%,5)+(70 000-30 000)(F/A,i*%,5) = 0
   d. -200 000(F/P,i*%,5)+(70 000-30 000)(F/A,i*%,5) = 0
9. **Refer to the Decision Criteria Table.** Project B's Annual Equivalent Worth (AEW) is given by
   a. -300 000(A/P,10%,10)+(90 000-35 000)-1 000(A/G,10%,10)
   b. -300 000(A/F,10%,10)+(90 000-35 000)+1 000(A/F,10%,10)
   c. -300 000(P/F,10%,10)+(90 000-35 000)(F/A,10%,10)-1 000(A/G,10%,10)
   d. -300 000(A/P,10%,10)+(90 000-35 000)+1 000(A/G,10%,10)
10. **Refer to the Decision Criteria Table.** Project A's internal rate of return (IRR) could be found using
    a. -200 000(F/P,i*%,5)+(70 000-30 000)(F/A,10%,5) = 0
    b. -100 000 (A/P,i*%,5)+(70 000-30 000) = 0
    c. -100 000+(70 000-30 000)(P/A,10%) = 0
    d. -200 000+(70 000-30 000)(P/A,10%,5) = 0

IRR MATRIX

The following six projects
- Are ranked from smallest to largest basted on their initial cost (P);
- Have identical lives (durations); and
- Have $0 salvage values.

Projects	Rates of return (%)					
	A	B	C	D	E	F
A (smallest)	36					
B	35	33				
C	32	30	29			
D	31	28	27	25		

E	30	23	20	21	23	
F (largest)	28	21	19	18	19	21

11. **Refer to the IRR Matrix.** If A, B, C, D, E and F are mutually exclusive projects and MARR = 24%, valid (or acceptable projects are)
    a. B, C, D
    b. A, B
    c. A, B, C, D
    d. A, B, C
12. **Refer to the IRR Matrix.** If A, B, C, D, E and F are mutually exclusive projects and MARR = 24%, valid (or acceptable projects are)
    a. C
    b. B
    c. D
    d. E
13. **Refer to the IRR Matrix.** If A, B, C, D, E and F are mutually exclusive projects and MARR = 24%, valid (or acceptable projects are)
    a. A
    b. C
    c. F
    d. B
14. Which of the following Excel functions would you use to determine a project's annual equivalent worth (AEW) given its initial cost, its MARR its duration and its salvage value?
    a. PMT
    b. FV
    c. NPV
    d. PV
15. The External Rate of Return (ERR) Method assumes that a project's cash inflows are reinvested at a predetermined interest rate (such as MARR)
    a. True
    b. False
16. The baseline for accepting or rejecting a project using the simple payback method is
    a. $0
    b. MARR (%)
    c. Industry standard or threshold for the project
    d. 1
17. If a project's Annual Equivalent Worth is positive (>$0), it's B/C ratio must exceed 1
    a. False
    b. True
18. The Discounted Payback Method is based on a project's
    a. Useful life
    b. None of these answers
    c. Physical life
    d. Economic life
19. If MARR=0%, the recovery of a project's initial cost will
    a. Be shorter with the simple payback method than with the discounted method
    b. Be longer with the simple payback method than with the discounted method
    c. Depend on the project's salvage value

    d. Be the same with both simple and discounted payback methods
20. If two projects have identical (equal) recovery periods using the simple payback method, they must have the same Net Present Worth (NPW)
    a. False
    b. True
21. Projects can have multiple internal (IRR) and external (ERR) rates of return
    a. True
    b. False
22. The Simple Payback method assumes that a project's net cash flows are reinvested at a Predetermined positive rate of return (such as MARR)
    a. False
    b. True
23. The analysis that focuses on the impact of a project on the economic well-being of a target population (that people with "standing") is
    a. Financial analysis
    b. Cost effectiveness
    c. Multi-criteria analysis
    d. Economic analysis
24. If a project's IRR>MARR, then IRR>ERR
    a. Depends on the project's pattern of annual cash flows
    b. Always
    c. Only if the project is of infinite duration (life)
    d. Never
25. The annual nominal rate of interest compounded quarterly (to the nearest 1st decimal) that is equivalent to a monthly rate of 3% is
    a. 42.58%
    b. 37.1%
    c. 9.27%
    d. 3%
26. With the Present Worth Method, a common period of analysis must be used to determine the better of two projects with unequal lives
    a. True
    b. False
27. The Discounted Payback Method is used to determine the better of projects A & B for which the industry threshold is 5 years. Your inalysis shows that project A's recovery is 5.5 years and project B's recovery is 6 years. Which project would you select?
    a. B
    b. Neithera A nor B
    c. Both A and B
    d. A
28. With the Annual Equivalent Method (AEW), a common period of analysis must be used to determine the economic validity (acceptable or not acceptable) of two projects with unequal lives
    a. True
    b. False
29. The key focus of the Annual Equivalent Worth (AEW) method is
    a. Equity
    b. Profitability

c. Fluidity
d. Liquidity

30. The interest rate factor (P/G,i%,N) is equal to
    a. (P/A,i%,N)(A/F,i%,N)
    b. (P/A,i%,N)(P/F,i%,N)
    c. (F/A,i%,N)(A/G,i%,N)
    d. (P/A,i%,N)(A/G,i%,N)
31. If the incremental ERR method of valid and equal duration projects A & B exceeds MARR, you would select the "bigger" project because
    a. None of these answers
    b. The rate of return on the higher cost of the "bigger" project = MARR
    c. The rate of return of the higher cost of the "bigger" project > MARR
    d. The rate of return on the higher cost of the "bigger" project < MARR
32. The nominal rate of interest
    a. None of these answers
    b. Is not affected by the frequency of within-year compounding
    c. Increases with the frequency of within year compounding
    d. Decreases with the frequency of within-year compounding
33. The analysis that focuses on a project's cash inflows and outflows is
    a. Financial analysis
    b. Economic analysis
    c. Cost effectiveness
    d. Multi-criteria analysis
34. A project with a negative Net Future Worth has an IRR which is
    a. < MARR
    b. = MARR
    c. > MARR
    d. < 0%
35. If a rate of interest is defined at 24% compounded monthly, the nominal rate of interst (nearest 2 decimals) is
    a. None of these answers
    b. 24.00%
    c. 26.82%
    d. 2.00%
36. A nominal rate of interest will exceed its effective rate of interest when
    a. A project has a very short life
    b. The life of a project tends to infinity
    c. The frequency of within-year compounding tends to infinity
    d. None of these answers.

SOLUTIONS

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