

Section A: Multiple Choice Questions

You borrow 6,000 3-year loan at 5% from a bank. You are using the amortization schedule of Fixed Payment Schedule.

- What is the annuity payment?
 - 2000
 - 2203**
 - 1998
 - None of the above
- What is the amount of principal that you pay at year 2?
 - 2000
 - 1903.25
 - 1998.41**
 - 2203.25
- If the 5% is quote annual percentage rate, and the bank request you to make monthly payment, what is EAR (effective annual rate)?
 - 5.09%
 - 5%
 - 5.12% $(1+5\%/12)^{12}-1$**
 - 5.15%

C(payment)=2,203.25

Year	Beg. Bal.	Payment	Interest	Principle	End Bal.
1	6000.00	2203.25	300.00	1903.25	4096.75
2	4096.75	2203.25	204.84	1998.41	2098.33
3	2098.33	2203.25	104.92	2098.33	0.00

- Suppose you invest \$250,000 at 6% per year, how long does it take before the investment turns \$300,000? Identify the Excel function.
 - NPER (0.06,250000,0,300000)
 - NPER (0.06,0, - 250000,300000)**
 - NPER (0.06,0,0,300000)
 - NPER (0.06,0,250000,300000)
- ABC Inc. has an investment project that produces sales revenues of \$135m (with no costs of goods sold) and net income of \$40m, and operating cash flows of \$54m, pay dividends of \$12m, have accounts receivables equivalent to 15% of sales, no inventory and the after-tax interest cost is \$5m this year. What is ABC's change of net working capital (Δ NWC) this year?
 - 34.25m
 - 29.25m
 - 14m
 - 20.25m (135×0.15)**

Section B consists of 2 Questions. Show the steps you use to solve problems.

Q1. The payback period for each project is:

A: $3 + (\text{£}159,600/\text{£}510,000) = 3.31 \text{ years}$

B: $1 + (\text{£}9,600/\text{£}12,600) = 1.76 \text{ years}$

Choose project B based on payback period rule

The NPV for each project is:

A: $\text{NPV} = -252,000 + 18,000/1.15 + 36,000/1.15^2 + 38,400/1.15^3 + 510,000/1.15^4 = 107,716.12$

B: $\text{NPV} = -24,000 + 14,400/1.15 + 12,600/1.15^2 + 11,400/1.15^3 + 9,800/1.15^4 = 11,148.02$

NPV criterion implies we accept project A because project A has a higher NPV than project B.

For Project A, NPV (@ 28%) = -7664.49

NPV (@ 26%) = 6500.75

IRR can be estimated as

$$\frac{\text{IRR} - 26\%}{28\% - 26\%} = \frac{0 - 6500.75}{-7664.49 - 6500.75}$$

IRR for Project A is 26.92%

Q2. You are considering an investment project with an estimated life of 2 years with following information:

Revenue Estimates Sales = 100 units/year Per Unit Price = \$260

There are no R&D or overhead costs

Cost Estimates Per Unit Cost = \$100

Accounts Receivables is equal to 10% of sales and Accounts Payables is equal to 10% of costs of goods sold.

Up-Front New Equipment = \$15,000; The Expected life of the new equipment is 2 years and straight-line depreciation method is used. The required rate of return is 10% and the corporate tax rate is 35%. Present the capital budgeting decision in a Table including the following information:

- 1) What are the unlevered net income for year 1 and year 2?
- 2) What are the free cash flows for year 0, year 1, year 2, and year 3?

	Year 0	Year 1	Year 2	Year 3
NWC		1600	1600	0

	Year 0	Year 1	Year 2
Sales		26000	26000
COGS		10000	10000
Gross profit		16000	16000

Depreciation		7500	7500	
EBIT		8500	8500	
Tax		2975	2975	
Unlevered net income		5525	5525	0
Capex	15000			
Depreciation		7500	7500	
Change in NWC		1600	0	-1600 (NWC is recouped after the project ends)
FCF	-15000	11425	13025	1600

NPV= 7,352.93