

Assignment 02: Due date 04 September 2015 Compulsory

Unique nr: 759379
Marks weight: 20%

ASSIGNMENT 02 - SEMESTER 1

ASSIGNMENT 02	
Due date	05 September 2016
Study material	Hughes & Cotterell: Chapters 2
Total marks	32 marks = 100%

UNIQUE NUMBER:
759379

QUESTIONS FOR ASSIGNMENT 02:

The cash flows of Projects 1 and 2 are given in the table below (in ZAR, South African rand, R):

Year	Project 1	Project 2
0	-R155000	-R140000
1	-R5000	R15000
2	R40000	R5000
3	R50000	R20000
4	R50000	R30000
5	R50000	R60000
6	R30000	R70000

Table of cash flows for Project 1 and 2

Use this information to calculate the **Net Profit**, the **Return on Investment (ROI)**, the **payback period** and the **Net Present Value** at 10% for **each** of these projects. Then answer Questions 1 – 5.

1. Calculate the Net Profit for each project. (6 marks)

Project 1:
Answer

Net profit is the difference between the total costs and the total income over the life of the project.
 $((-155\ 000) + (-5\ 000) + 40\ 000 + 50\ 000 + 50\ 000 + 50\ 000 + 30\ 000) = \mathbf{R60\ 000}$

Project 2:
Answer

Net profit is the difference between the total costs and the total income over the life of the project.
 $((-140\ 000) + 15\ 000 + 5\ 000 + 20\ 000 + 30\ 000 + 60\ 000 + 70\ 000) = \mathbf{R60\ 000}$

Additional information about net profit:

Disadvantage as method for comparing projects – takes no account of timing of cash flows

Advantage as method for comparing projects – simple to calculate

2. Calculate the Return on Investment for each project. (6 marks)

Project 1:
Answer

Return on Investment (ROI), also called Accounting Rate of Return (ARR), provides a way of comparing the net profitability to the investment required.

$$\text{ROI} = \frac{\text{average annual profit}}{\text{total investment}} \times 100$$

$$= \frac{60\ 000/6}{160\ 000} \times 100$$

$$= \frac{10\ 000}{160\ 000} \times 100$$

$$= \mathbf{6.25\%}$$

However, the following may also be marked as correct solution, on the assumption that the -R5000 is a loss made in the 1st year and NOT an investment:

$$= \frac{60\ 000/6}{155\ 000} \times 100$$

$$= \frac{10\ 000}{155\ 000} \times 100$$

$$= \mathbf{6.45\%}$$

Project 2:
Answer

$$\text{ROI} = \frac{\text{average annual profit}}{\text{total investment}} \times 100$$

$$= \frac{60\ 000/6}{140\ 000} \times 100$$

$$= \frac{10\ 000}{140\ 000} \times 100$$

$$= \mathbf{7.14\%}$$

3. Calculate the Payback Period for each project. (6 marks)

Project 1:

Answer = (i.e., $4 + (20000/50000) = 4.4$ yrs) OR $(5 - (30000/50000)) = 4.4$ yrs)

Payback is the time taken to break even or pay back the initial investment

Year	Project 1	Calculations for pay back period
0	-R155 000	- R155 000
1	-R5 000	(- R155 000) + (- 5 000) = - 160 000
2	R40 000	(-160 000) + 40 000 = - 120 000
3	R50 000	(-120 000) + 50 000 = - 70 000
4	R50 000	(- 70 000) + 50 000 = - 20 000
5	R50 000	(- 20 000) + 50 000 = 30 000

Project 2:

Answer = (i.e., $5 + (10000/70000) = 5.14$ yrs) OR $(6 - (60000/70000) = 5.14$ yrs)

Payback is the time taken to break even or pay back the initial investment

Year	Project 1	Calculations for paid back period
0	-R140 000	- R140 000
1	R15 000	(- R140 000) + 15 000 = - 125 000
2	R5 000	(-125 000) + 5 000 = - 120 000
3	R20 000	(-120 000) + 20 000 = - 100 000
4	R30 000	(- 100 000) + 30 000 = - 70 000
5	R60 000	(- 70 000) + 60 000 = - 10 000
6	R70 000	(- 10 000) + 70 000 = 60 000

Additional information about payback period:

4. Calculate the Net Present Value for each project. (12 marks)

Note: the Table of NPV Discount Factors is available in the prescribed text book.

Project 1:

Answer

Year	Project 1	Discount Factor at 10%	Discounted cash flow (R)
0	-R155 000	1.00	-155 000
1	-R5 000	0.9091	-4 545
2	R40 000	0.8264	33 056
3	R50 000	0.7513	37 565
4	R50 000	0.6830	34 150
5	R50 000	0.6209	31 045
6	R30 000	0.5645	16 935
NPV			-R6 794

**Project 2:
Answer**

Year	Project 2	Discount Factor at 10%	Discounted cash flow (R)
0	-R140 000	1.00	-140 000
1	R15 000	0.9091	13 636
2	R5 000	0.8264	4 132
3	R20 000	0.7513	15 026
4	R30 000	0.6830	20 490
5	R60 000	0.6209	37 254
6	R70 000	0.5645	39 515
NPV			- R9 947

5. Based on your calculation of the individual Return on Investment (ROI) of each project in question 2 above, which project would you select to develop? (2 marks)

Answer = Project 2: (Project 2 has a higher ROI (7.14%) than Project 1 (6.25%))