Practice problem for chapter 4

1 Cash Flow of Two projects are given bellow:
Select the project considering 15% MARR when the projects are independent.
Apply **NPV** method

Project S

year	0	1	2	3	4
Cash flow	-9000	3000	6000	3005	606

Project L

year	0	1	2	3	4
Cash flow	-9000	4000	2000	2814	2001

2 Two independent public projects were being considered by govt. have the following estimated benefit and cost. By using Benefit cost ratio, select the project and consider discount rate 17.5%

Project P

year	0	1	2	3	4	5
Benefit	0	4500	4500	3700	2610	1500
Cost	7775	3000	2150	1010	750	1500

Project Q

year	0	1	2	3	4	5
Benefit	0	5000	4000	2500	2200	2000
Cost	6582	1800	1700	2000	4000	1900

3 Two Mutually Exclusive public projects were being considered by govt. have the following estimated benefit and cost. By using **NPV** method, select the project and consider discount rate 6%

Project N

year	0	1	2	3	4	5
Benefit	0	11000	12000	5000	2500	0
Cost	15001	3050	2010	1010	1500	2000

Project R

year	0	1	2	3	4	5
Benefit	0	7001	5000	1500	2200	1800
Cost	5999	1500	1700	2000	4000	1500

4 You are a CEO of AKS rolling mill. Now there are 2 independent projects and you have to make decision considering the Return rate 27.5% .You have heard the name of **IRR** method ,but you don't know how to use it. So you hired an Engineer from UIU to make that desion for you. What is the outcome of the method?

Project N

year	0	1	2	3	4	5
Cash flow	-5000	3000	1700	1200	2058	1800

Project M

year	0	1	2	3	4	5
Cash flow	-5069	2500	1200	1500	2458	1600

5 There are 2 projects and the authority wants to get the investment back within 4 years.Which project will you select considering 28% MARR and applying **Discounted pay back period** method when the projects are Mutually exclusive?Will your answer change if the projects are independent?What will be your answer if you need to use **NPV** mehotd and **IRR** method too?(Consider the project first mutually exclusive and then independent for NPV and IRR method too)

Project A

year	0	1	2	3	4
Cash flow	-8999	4000	2500	2954	656

Project B

year	0	1	2	3	4
Cash flow	-7001	4501	1999	1702	1985

Tips:1 If the interest rate given in the question is semiannually,monthly or anything other than yearly, you need to calculate the Effective rate and then start the math with that EFF