Question 2.

Company ABC wants to decide whether to take on the project of asset replacement; it wants to get rid of two old machines and purchase a new machine today. Here is the information about these machines:



<First Old Machine>  
When the company purchased the first old machine at $14,000 five years ago, it planned to use the machine for 7 years. The company has been recording the depreciation expense using straight-line method over the five years. Today, the company can sell this machine at $2,000. When this machine fully depreciates, it has no salvage value, which means the firm cannot sell this machine at a positive price at the end of the second year.



<Second Old Machine>  
When the company purchased the second old machine at $15,000 four years ago, it planned to use the machine for 5 years. The company has been recording the depreciation expense using straight-line method over the four years. Today, the company can sell this machine at $6,000. When this machine fully depreciates, it has no salvage value, which means the firm cannot sell this machine at a positive price at the end of the first year.



<New Machine>  
One month ago, the company paid $2,000 to consultants to figure out which brand of machine is the best for a purchase and the company has found this new machine. The company can buy the new machine at $18,000 today and the shipping costs are $2,000. The new machine can last for four years and the company will record depreciation expense using the straight-line method over the next four years. Because a more advanced machine may come out in the market two years later, the company will stop using the new machine after two years, at which point the company can sell the new machine at $9,000. In addition, because the new machine is more efficient than the old machines, if the company takes on the project, the revenues will increase by $10,000 and operating costs will decrease by $5,000 each year over the next two years in comparison the case of not taking the project. In order to prevent suppliers from being worried about not receiving the raw materials costs purchased by Company ABC, it will speed up the rate of making payments to the suppliers by reducing accounts payable by $1,000 today and will increase the accounts payable by $1,000 in Year 2 when the project terminates.



Supposing that the tax rate on the capital gain/loss is 10% and the corporate income tax is 20%, find the relevant incremental cashflow associated with the project in each of the years from Year 0 through Year 2.



Question 4.

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| Company XYZ is considering the following projects, which are mutually exclusive because of budget constraint. |  |  |  |

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| --- | --- | --- | --- |
| Project | Cash Needed Today ($) | NPV ($) | PI |
| Project A | 1000 | 50 | 1.05 |
| Project B | 500 | 200 | 1.4 |
| Project C | 800 | 840 | 2.05 |
| Project D | 200 | 20 | 1.1 |
| Project E | 500 | 400 | 1.8 |
| Project F | 500 | 500 | 2 |