**FM 250 Problem Set Class 8 - Cash Flows**

**Question 1.**

Which of the following should be treated as incremental cash flows when deciding whether to invest in a new manufacturing plant? The site is already owned by the company but existing buildings would need to be demolished.

a) The market value of the site and existing buildings.
b) Demolitions costs and site clearance.
c) The cost of a new access road put in last year.
d) Lost earnings on other products due to executive time spent on the new facility.
e) A proportion of the cost of leasing the president's jet airplane.
f) Future depreciation tax shields of the new plant.
g) The reduction in the firm's tax bill resulting from tax depreciation of the new plant.
h) The initial investment in inventories of raw materials.
i) Money already spent on the engineering design of the new plant.

**Question 2.**

United Pigpen is considering a proposal to manufacture high-protein hog feed. The project would make use of an existing warehouse which is currently rented out to a neighboring firm. The first year's rental charge on the warehouse is $100,000 (t=1) and this number is expected to grow at 4% per year. In addition to using the warehouse, the proposal envisages an investment in plant and equipment of $1.2 million. Depreciation is $120,000 per year, for 8 years, based on tax regulations (it is not straight-line depreciation). Pigpen expects to terminate the project after eight years and to resell the plant and equipment then (i.e., in t=8) for $400,000. The project requires an initial (t=0) investment in working capital of $350,000. Thereafter, working capital is forecasted to be 10% of sales in each of years 1 through 7, and fully recovered by the year 8. This year's sales of hog feed are expected to be $4.2 million and thereafter sales are forecasted to grow by 5% per year. Manufacturing costs are expected to be 90% of sales. The corporate tax rate is 35% and the discount rate is 12%. What is the NPV?

**Question 3**

USX is considering adding an additional furnace that will operate for ten years. Last year the company commissioned a feasibility study that cost $1 million. The study came up with the following numbers. The new furnace costs $1,000 million and has a salvage value of $200 million at the end of the ten-year period. Using the new furnace increases sales by $150 million per year and involves operating expenses of $10 million per year. Moreover, working capital requirements increase by $20 million immediately, stay constant each year, and then in the last year is fully recovered. According to IRS rules the new furnace must be depreciated straight line over ten years. The new furnace will need parts from an old furnace USX already owns. The old furnace is fully depreciated and has a resale value (after-tax) of $30 million. Without the parts, which are no longer manufactured, the old furnace has no resale value. The corporate tax rate is 35% and the cost of capital is 10%. Should USX go ahead with the new furnace?