

## Test 3 (100 Points)

Time: 100 Minutes (+ 10 if you request to complete your calculations)

---

Read instructions carefully. Explain and show your work. No use of computer or cell phone allowed. Use of printed formula sheet and table for 8%, 12% and 15% is allowed. Non-digital textbook for use of the 3 tables (not the formula) is allowed. Write your name on sheets of paper you have (including table and formula sheets) and turn them in at the end of the test time.

Use of EXCEL: There are 2 computers assigned to be used with EXCEL for rate of return calculation only. Any Internet access attempt or use of EXCEL for problems not eligible for spreadsheet use would cause in immediate disqualification and a grade of zero on overall test. Use of the computer is limited to 5 minutes per person at a time. No file should be saved, only the results copied. EXCEL should be closed after the use and relaunched for the next user. You must have the cash flow that you are planning to enter ready and show it to the instructor before you are allowed to use the spreadsheet.

### **PROBLEM 1:**

Calculate a project's PW with estimated costs of \$40,000 now and \$8000 per year for 5 years beginning 1 year from now with increases of 10% per year thereafter for the next 8 years. Use a real interest rate of 15% per year to make the calculations (a) without an adjustment for inflation (10 pts) and (b) considering inflation at a rate of 11% per year for the first 5 years and 13% for the years after that (25 pts). (No use of EXCEL)

### **PROBLEM 2:**

A company has purchased a new industrial processing unit for \$90,000. The unit has an anticipated life of 7 years and a salvage value of \$12,000. Using the DB, DDB, SYD, and DDB-to-SL from year 4 depreciation methods, what are the book values and depreciation for the last three years of each method? (20 pts) (No use of EXCEL)

### **PROBLEM 3:**

A company has a new contract for which it plans to purchase additional equipment for use in the 6-year contract. The equipment is expected to cost \$600,000 and have a resale value of \$180,000 after 6 years. Use of the new equipment will increase contract revenue by \$220,000 per year and require an additional M&O expense of \$90,000 per year. MACRS depreciation allows recovery in 5 years, and the effective corporate tax rate is 30% per year. Tabulate and plot CFBT and

CFAT series (15 pts). What is the rate of return of this project? (10 pts) (EXCELL eligible) – screen capture your EXCEL sheet, place it in word document, save it to your flash drive and AFTER the TEST email it.

**PROBLEM 4:**

For a 2 year project the following transactions are noted:

Initial investment	\$5000
Net revenues (Year 1):	
End of month 2	\$1300
End of Week 11	\$1400
End of month 7	\$1500
End of Week 39	\$1600
End of month 11	\$1500
End of Year 1	-\$2000
Net revenues (Year 2):	
End of month 3	\$500
End of Week 22	\$300
End of Day 200	\$600
End of Day 250	\$1000
End of month 10	\$500
End of Year 2	\$600

Calculate PW at 12% interest rate compounding annually. Do the same with compounding weekly. What is the equivalent of this investment in AW if interest rate were compounding quarterly? (30 pts)