

ENGR 301/2

Engineering Management Principles and Economics

Final Exam Practice Questions

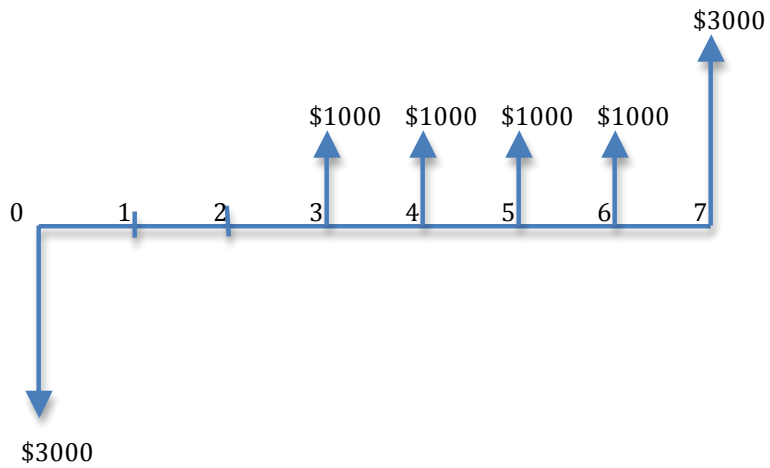
1. At age 30 you invest \$5,000 into a mutual fund. If the fund averages an 8% annual return, your investment is worth how much at age 55?
(A) \$23,300 (B) \$34,240 (C) \$50,310 (D) \$344,570
2. You are saving up for a big investment in six years. You estimate it will take \$14,500 to secure this investment. How much do you need to put into a savings account at the end of each year if the savings account earns 4%? Neglect taxes.
(A) \$2,185 (B) \$2,375 (C) \$2,415 (D) \$2,485
3. You are buying your first car and need to borrow \$16,000 over 5 years. If interest is 6%, what are your monthly payments?
(A) \$267 (B) \$309 (C) \$347 (D) \$389
4. You are considering investing in a 5-yr CD (certificate of deposit) with an annual yield of 6.5% and monthly compounding. If you invest \$5,000, your effective interest earned is most nearly:
(A) 6.5% (B) 6.6% (C) 6.7% (D) 6.8%
5. A lift station sewage pump initially costs \$20,000. Annual maintenance costs are \$300. The pump salvage value is 10 percent of the initial cost in 20 years. Using 4% interest, the annual cost of the pump is most nearly:
(A) \$1,200 (B) \$1,705 (C) \$1,772 (D) \$1,840
6. A computerized wood lathe, costing \$17,000, will be used to make ornamental parts for sale. Receipts are estimated at \$28,000 per year with costs running \$25,000 per year. The salvage value is \$2,000 at the end of 10 years. If the MARR is 8%, what is the present worth of this investment?
(A) -\$410 (B) \$3,130 (C) \$4,060 (D) \$5,210
7. Two alternatives are available for producing logos on sport shirts. Costs are shown below. Interest is 4%.

	Machine A	Machine B
Initial Cost	\$54,000	\$74,000
Salvage Value	\$8,100	\$7,400
Operating Costs	\$2,100/yr	\$1,400/yr - 1st 10 years \$1,800/yr - 2 nd 10 years
Life	15 years	20 years

Q1: The annual cost for machine A (ACA) is: (A) \$6,350 (B) \$6,550 (C) \$6,750 (D) \$6,950

Q2: The annual cost for machine B (ACB) is: (A) \$6,360 (B) \$6,560 (C) \$6,760 (D) \$6,960

8. Determine the present worth of the following cash flow with $i = 10\%$



- (A) \$1160 (B) \$1050 (C) \$600 (D) \$780
9. The equivalent single amount, at year five, to the given cash flow is close to:
(A) \$1692 (B) \$1484 (C) \$966 (D) \$1868