

Solution for Assignment 1

1. For any economic venture to be successful, economic efficiency should have value
 - a. More than 100%
 - b. Less than 100%
 - c. Between 0 and 50%
 - d. Between 50 and 100%
2. Rate of capital growth received from an investment is
 - a. Interest
 - b. Interest rate
 - c. Value
 - d. Utility
3. Relation between and..... leads to concept of time value of money
 - a. Consumer and Producer goods
 - b. Value and Utility
 - c. Earning power and Purchasing power of money
 - d. Interest and Time
4. Which of the following activity is a part of utilization phase of product life cycle?
 - a. Preliminary design
 - b. Detailed design
 - c. Construction
 - d. Support
5. is denoted by, a factor, when multiplied with future amount F, gives the present worth P, at interest rate I & interest period of n.
 - a. Single payment compound amount factor, $(P/F, i, n)$
 - b. Single payment present worth factor, $(P/F, i, n)$
 - c. Single payment compound amount factor, $(F/A, i, n)$
 - d. Single payment present worth factor, $(F/A, i, n)$
6. A man deposits certain sum of money P, every year end. For finding the compound amount at the end of 10 interest periods at 15% interest rate, the factor with which P is to be multiplied is
 - a. Equal payment series sinking fund factor
 - b. Equal payment series capital recovery factor
 - c. Equal payment series compound amount factor
 - d. Equal payment series present worth factor
7. The amount of money that a company can spend now for improving productivity instead of spending Rs. 30,000 three years from now at an interest rate of 12% per year is
 - a. Rs. 15,708
 - b. Rs. 17,805
 - c. Rs. 19,303
 - d. Rs. 21,353

Solution: Given, $F = \text{Rs } 30000$, $i = 12\% = 0.12$, $n = 3$

$$P = 30000 (P/F, i, n) = 30000 (1 + 0.12)^{-3} = 30000(0.71178) = 21353 \text{ (Ans)}$$

8. A student of 20 years old is planning to have personal savings totaling Rs. 10,00,000 when he retires at age 65. If the annual interest rate will be 7% over the next 45 years on her savings account, the equal end-of-year amount she must save to accomplish her goal will be
- Rs. 3,400
 - Rs. 4,300
 - Rs. 3,500
 - Rs. 5,300

Solution: Given, $F = 1000000$, $n = 45$, $i = 7\% = 0.07$

$$A = F (A/F, i, n) = F [i / \{(1+i)^n - 1\}] = 1000000 [0.07 / \{(1+0.07)^{45} - 1\}]$$

$$= 1000000 \times (3.5 \times 10^{-3}) = 3500 \text{ (Ans)}$$

9. The present worth of following series of cash flow of an interest rate of 10% compounded annually will be:

End of Year	Net cash flow
1	55000
2	60500
3	0
4	73205

- 135000
- 150000
- 140000
- 155000

Solution: Given, $i = 10\% = 0.1$, $F_1 = 55000$, $F_2 = 60500$, $F_3 = 0$, $F_4 = 73205$

$$P = F_1 (P/F, i, 1) + F_2 (P/F, i, 2) + F_4 (P/F, i, 4)$$

$$= 55000 (1+0.1)^{-1} + 60500 (1+0.1)^{-2} + 73205 (1+0.1)^{-4}$$

$$\approx 150000 \text{ (Ans)}$$

10. A loan of Rs 30000 taken is to be repaid in a series of 5 equal payments annually. At 15% interest rate compounded annually, the value of equal annual amount will be

- 8949
- 10509
- 7926
- 8500

Solution: Given, $P = 30000$, $n = 5$, $i = 15\% = 0.15$

$$A = P (A/P, i, n) = P [\{i(1+i)^n\} / \{(1+i)^n - 1\}] = 30000 [\{0.15(1+0.15)^5\} / \{(1+0.15)^5 - 1\}]$$

$$= 30000 \times 0.2983 = 8949 \text{ (Ans)}$$