**CoE - Tutorial 5**

**Q1.** Assume a 10% discount rate. Rs 1100, Rs. 900, Rs 1500, and Rs. 700 received at the end of one through four years respectively. Compute the total present value.

**Q2.** Sadhu Lal Bhai is borrowing Rs 50,000 to buy a low-income group house. If he pays equal installments for 25 years and 4 percent interest on outstanding balance,

A. What is the amount of installment?

B. What shall be amount of installment if quarterly payments are required to be made?

**Q3.** You invest ₹5,000 at the end of every month in a mutual fund that earns 8% per year, compounded monthly. What will be the future value after 5 years?

**Q4.** There are two products pizza and burger, price of each pizza is Rs 200, and the price of each burger is Rs 100. An individual has Rs 1100 to spend. How this Rs 1100 be spent between the two products to achieve the maximum utility?

|  |  |  |
| --- | --- | --- |
| Quantity | MU of Pizza | MU of Burger |
| 1 | 9000 | 5000 |
| 2 | 8000 | 4000 |
| 3 | 7000 | 3000 |
| 4 | 6000 | 2000 |
| 5 | 5000 | 1500 |
| 6 | 4000 | 1000 |

**Q5.** Consider the following data showing Bob’s total utility from the consumption of two goods: Winston Cup Races and Broadway musicals. Assume the price of races is Rs 50, the price of Broadway musicals is Rs 100, and Bob has Rs 300 to spend.

A. Assuming that he wishes to maximize his utility, what combination of Winston Cup Races and Broadway musicals will Bob purchase? Justify your answer.

B. If the price of musicals doubles, what will happen to Bob’s consumption of the two goods?

|  |  |  |  |
| --- | --- | --- | --- |
| No. of Races | Total Utility | No. of Musicals | Total Utility |
| 1 | 1000 | 1 | 1000 |
| 2 | 1800 | 2 | 1800 |
| 3 | 2500 | 3 | 2500 |
| 4 | 3000 | 4 | 3000 |
| 5 | 3200 | 5 | 3200 |

Summary :

 **PV formula:** *“What is this future money worth today?”*

 **PMT formula:** *“If I take money today, what fixed amount must I pay back each period?”*

 **FVA formula:** *“If I save money each period, how much will I have in the end?”*

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