

Aptitude :: True Discount

Ques1: A man purchased a cow for Rs. 3000 and sold it the same day for Rs. 3600, allowing the buyer a credit of 2 years. If the rate of interest be 10% per annum, then the man has a gain of:

- A. 0%
- B. 5%
- C. 7.5%
- D. 10%

Answer: Option A

Explanation:

C.P. = Rs. 3000.

$$S.P. = Rs. \left[\frac{3600 \times 100}{100 + (10 \times 2)} \right] = Rs. 3000.$$

Gain = 0%.

Ques2: The true discount on Rs. 2562 due 4 months hence is Rs. 122. The rate percent is:

- A. 12%
- B. 13%
- C. 15%
- D. 14%

Answer: Option C

Explanation:

P.W. = Rs. (2562 - 122) = Rs. 2440.

∴ S.I. on Rs. 2440 for 4 months is Rs. 122.

$$\therefore \text{Rate} = \left[\frac{100 \times 122}{2440 \times \frac{1}{3}} \right] \% = 15\%.$$

Ques3: A trader owes a merchant Rs. 10,028 due 1 year hence. The trader wants to settle the account after 3 months. If the rate of interest 12% per annum, how much cash should he pay?

- A. Rs. 9025.20
- B. Rs. 9200
- C. Rs. 9600
- D. Rs. 9560

Answer: Option B

Explanation:

Required money = P.W. of Rs. 10028 due 9 months hence

$$= \text{Rs.} \left[\frac{10028 \times 100}{100 + \left(12 \times \frac{9}{12} \right)} \right]$$

= Rs. 9200.

Ques4: A man wants to sell his scooter. There are two offers, one at Rs. 12,000 cash and the other a credit of Rs. 12,880 to be paid after 8 months, money being at 18% per annum. Which is the better offer?

- A. Rs. 12,000 in cash
- B. Rs. 12,880 at credit
- C. Both are equally good

Answer: Option A

Explanation:

P.W. of Rs. 12,880 due 8 months hence = Rs. $\left[\frac{12880 \times 100}{100 + \left(18 \times \frac{8}{12} \right)} \right]$

$$= \text{Rs.} \left(\frac{12880 \times 100}{112} \right)$$

= Rs. 11500.

Ques5: If Rs. 10 be allowed as true discount on a bill of Rs. 110 due at the end of a certain time, then the discount allowed on the same sum due at the end of double the time is:

- A. Rs. 20
- B. Rs. 21.81
- C. Rs. 22
- D. Rs. 18.33

Answer: Option D

Explanation:

S.I. on Rs. (110 - 10) for a certain time = Rs. 10.

S.I. on Rs. 100 for double the time = Rs. 20.

T.D. on Rs. 120 = Rs. (120 - 100) = Rs. 20.

T.D. on Rs. 110 = Rs. $\left(\frac{20}{120} \times 110 \right) = \text{Rs. } 18.33$

Ques6: The true discount on a bill due 9 months hence at 16% per annum is Rs. 189. The amount of the bill is:

- A. Rs. 1386
- B. Rs. 1764
- C. Rs. 1575
- D. Rs. 2268

Answer: Option B

Explanation:

Let P.W. be Rs. x .

Then, S.I. on Rs. x at 16% for 9 months = Rs. 189.

$$\therefore x \times 16 \times \frac{9}{12} \times \frac{1}{100} = 189 \text{ or } x = 1575.$$

$$\therefore \text{P.W.} = \text{Rs. } 1575.$$

$$\therefore \text{Sum due} = \text{P.W.} + \text{T.D.} = \text{Rs. } (1575 + 189) = \text{Rs. } 1764.$$

Ques7: A man buys a watch for Rs. 1950 in cash and sells it for Rs. 2200 at a credit of 1 year. If the rate of interest is 10% per annum, the man:

- A. gains Rs. 55
- B. gains Rs. 50
- C. loses Rs. 30
- D. gains Rs. 30

Answer: Option B

Explanation:

S.P. = P.W. of Rs. 2200 due 1 year hence

$$= \text{Rs. } \left[\frac{2200 \times 100}{100 + (10 \times 1)} \right]$$

$$= \text{Rs. } 2000.$$

$$\therefore \text{Gain} = \text{Rs. } (2000 - 1950) = \text{Rs. } 50.$$

Ques8: The true discount on Rs. 1760 due after a certain time at 12% per annum is Rs. 160. The time after which it is due is:

- A. 6 months
- B. 8 months

- C. 9 months
- D. 10 months

Answer: Option D

Explanation:

P.W. = Rs. (1760 - 160) = Rs. 1600.

∴ S.I. on Rs. 1600 at 12% is Rs. 160.

$$\therefore \text{Time} = \left(\frac{100 \times 160}{1600 \times 12} \right) = \frac{5}{6} \text{ years} = \left(\frac{5}{6} \times 12 \right) \text{ months} = 10 \text{ months.}$$

Ques9: The present worth of Rs. 2310 due 2 years hence, the rate of interest being 15% per annum, is:

- A. Rs. 1750
- B. Rs. 1680
- C. Rs. 1840
- D. Rs. 1443.75

Answer: Option B

Explanation:

$$\text{P.W.} = \text{Rs.} \left[\frac{100 \times 2310}{100 + \left(15 \times \frac{5}{2} \right)} \right] = \text{Rs.} 1680.$$

Ques10: Rs. 20 is the true discount on Rs. 260 due after a certain time. What will be the true discount on the same sum due after half of the former time, the rate of interest being the same?

- A. Rs. 10
- B. Rs. 10.40
- C. Rs. 15.20
- D. Rs. 13

Answer: Option B

Explanation:

S.I. on Rs. 750 = T.D. on Rs. 960.

This means P.W. of Rs. 960 due 2 years hence is Rs. 750.

∴ T.D. = Rs. (960 - 750) = Rs. 210.

Thus, S.I. on Rs. 750 for 2 years is Rs. 210.

$$\therefore \text{Rate} = \left(\frac{100 \times 210}{750 \times 2} \right) \% = 14\%$$

Ques11: The interest on Rs. 750 for 2 years is the same as the true discount on Rs. 960 due 2 years hence. If the rate of interest is the same in both cases, it is:

- A. 12%
- B. 14%
- C. 15%
- D. 16%

Answer: Option B

Ques12: The simple interest and the true discount on a certain sum for a given time and at a given rate are Rs. 85 and Rs. 80 respectively. The sum is:

- A. Rs. 1800
- B. Rs. 1450
- C. Rs. 1360
- D. Rs. 6800

Answer: Option C

Explanation:

$$\text{Sum} = \frac{\text{S.I.} \times \text{T.D.}}{(\text{S.I.}) - (\text{T.D.})} = \frac{85 \times 80}{(85 - 80)} = \text{Rs. } 1360$$

Ques13: The present worth of Rs. 1404 due in two equal half-yearly installments at 8% per annum simple interest is:

- A. Rs. 1325
- B. Rs. 1300
- C. Rs. 1350
- D. Rs. 1500

Answer: Option A

Explanation:

Required sum = P.W. of Rs. 702 due 6 months + P.W. of Rs. 702 due 1 year hence

$$= \text{Rs.} \left[\left(\frac{100 \times 702}{100 + 8 \times \frac{1}{2}} \right) + \left(\frac{100 \times 702}{100 + (8 \times 1)} \right) \right]$$

$$= \text{Rs. } (675 + 650)$$

$$= \text{Rs. } 1325.$$

Ques14: if the true discount on s sum due 2 years hence at 14% per annum be Rs. 168, the sum due is:

- A. Rs. 768
- B. Rs. 968
- C. Rs. 1960
- D. Rs. 2400

Answer: Option A

Explanation:

$$\text{P.W.} = \frac{100 \times \text{T.D.}}{R \times T} = \frac{100 \times 168}{14 \times 2} = 600.$$

$$\therefore \text{Sum} = (\text{P.W.} + \text{T.D.}) = \text{Rs. } (600 + 168) = \text{Rs. } 768.$$

