

13. PROFIT AND LOSS

①

SIMPLE INTEREST

TEACHING TASK

2025/26

JEE MAINS LEVEL

01. $C.P = 250$
 $S.P = 285$
 $\text{gain} = 285 - 250 = \text{Rs } 35$
 $\text{gain \%} = \frac{35}{250} \times 100 = 14\%$

Ans: A

02. Let $C.P = x$
 $\text{gain} = \frac{1}{10} \text{ of } C.P = \frac{x}{10}$
 $\text{gain \%} = \frac{\text{gain}}{C.P} \times 100$
 $= \frac{\left(\frac{x}{10}\right)}{x} \times 100 = 10\%$

Ans: C

03. $\text{gain \%} = \frac{100 - 90}{90} \times 100 = \frac{10}{90} \times 100 = 11\frac{1}{9}\%$

Ans: B

04. $C.P = 4700 + 800 = 5500$
 $S.P = 5800$
 $\text{gain} = \frac{300}{5500} \times 100 = 5\frac{5}{11}\%$

Ans: B

06. $P = 250$; $R = 4\%$, $T = 6$ (2)

$$S.I = \frac{PTR}{100} = \frac{250 \times 6 \times 4}{100} = 600 \quad \text{Ans. D}$$

07 $P = \text{Rs } 8000$, $R = 8\%$ $T = 4\frac{1}{2} \text{ years} = \frac{9}{2}$

$$S.I = \frac{PTR}{100} = \frac{800 \times 9 \times 8}{100 \times 2}$$

$$= 2880.$$

$$\therefore A = P + I$$

$$= 8000 + 2880$$

$$= \text{Rs } 10,880$$

Ans: B

08 $P = 7200$, $R = 12\frac{3}{4}\% = \frac{51}{4}\%$

$T = 9 \text{ months} = \frac{3}{4} \text{ years}$

$$I = \frac{7200 \times 51 \times 3}{100 \times 4 \times 4} = \frac{11016}{16} = \text{Rs } 628.5$$

Ans: C

09 ~~800~~ $P = 12,600$, $R = 9\%$ $A = 15624$

We know $A = P + I$

$$\Rightarrow 15624 = 12,600 + I$$

$$\Rightarrow I = \text{Rs } 3024$$

$$I = \frac{PTR}{100}$$

$$3024 = \frac{12,600 \times T \times 9}{100} = 2\frac{2}{3}$$

$$= 2 \text{ years} + \frac{2}{3} \text{ of a year}$$

$$= 2y + \frac{2}{3} \times 12$$

$$= 2y + 8 \text{ months}$$

Ans: A

10 Given $I = 277.50$, $T = 2\frac{1}{2} = \frac{5}{2}$, $R = 7\frac{1}{2} = \frac{15}{2}$

$$S.I = \frac{PTR}{100}$$

(3)

$$\Rightarrow 277.5 = \frac{P \times 5 \times 15}{100 \times 2 \times 2}$$

Ans: D

$$\Rightarrow P = 1480$$

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11. Conceptual

Ans: A, B

12 We have $A = I + P$

Given $4P = I + P$

$$\Rightarrow 3P = I$$

$$\Rightarrow 3P = \frac{PTR}{100}$$

$$\Rightarrow 300 = 16 \times R$$

$$\Rightarrow R = \frac{300}{16}$$

$$\Rightarrow R = \frac{75}{4} \text{ or } 18\frac{3}{4}\%$$

Ans: ~~A, D~~

13 Statement I:

$$\% \text{ of gain} = \frac{\text{gain}}{C.P} \times 100$$

$$\Rightarrow 25 = \frac{\text{gain}}{560} \times 100$$

$$\Rightarrow \text{gain} = \text{Rs } 140.$$

$$\therefore S.P = C.P + \text{gain} = 560 + 140 = 700 \quad (\text{True})$$

Statement II: Conceptual (True)

Ans: A

14. Statement I:

$$S.I = \frac{PTR}{100}$$

$$= \frac{2000 \times 7 \times 11}{100 \times 3}$$

$$= \text{Rs } 770 \text{ (True)}$$

Ans. A

Statement II: Conceptual (True)

$$15 \quad C.P. = 1250 + 350$$

$$= \text{Rs } 1600$$

Ans. A

$$16 \quad \text{Loss} = 1600 - 1540$$

$$= \text{Rs } 60$$

Ans. A

$$17 \quad 49 = \frac{350 \times T \times 7}{100} \Rightarrow T = 2 \text{ years} \quad \text{Ans: 2}$$

$$18 \quad \text{Loss} = 400 - 336 = 64 \quad \text{Ans: 64}$$

$$19 \quad a) S.P > C.P \text{ (x)} \quad S.P - C.P > 0 \text{ (x, t)}$$

$$b) S.P < C.P \text{ (x)} \quad S.P - C.P < 0 \text{ (P, S)}$$

$$c) S.P > C.P \text{ (x)} \quad S.P - C.P > 0 \text{ (x, t)}$$

$$d) S.P = C.P \text{ (q)}$$

Ans: (x, t), (P, S), (x, t), q

LEARNER'S TASK (CUE'S)

01. Conceptual

Ans. A

18.	Conceptual	(5) Ans: A
03	profit = $1500 - 1020 = \text{Rs } 480$	Ans: B
04	Conceptual	Ans: C
05	Conceptual	Ans: C
06	Conceptual	Ans: C
07	Conceptual	Ans: D
08	$A = P + I = 1000 + 255 = 1255$	Ans: B

JEE MAINS LEVEL

01. NOTE: When an item is sold at the same price and there is an equal percentage gain on one and loss on the other, there is always a net loss.

$$\text{We have, Loss \%} = \left(\frac{\text{Common gain or loss}}{10} \right)^2$$

$$= \left(\frac{10}{10} \right)^2$$

$$= 1\%$$

Ans: K

03 Given C.P of 21 articles = S.P. of 18 articles
 Let the cost price of 1 article = x
 C.P of 21 articles = $21x$
 S.P of 18 articles = $21x$
 S.P of 1 article = $\frac{21x}{18} = \frac{7x}{6}$

$$\text{Gain} = \frac{7x}{6} - x = \frac{x}{6}$$

(6)

$$\text{gain \%} = \frac{\left(\frac{x}{6}\right)}{x} \times 100 = \frac{100}{6} = 16\frac{2}{3}\% \text{ Ans: C}$$

03 for 1 Rs. $\rightarrow$ 3 toffees
C.P. of 1 toffee = Rs $\frac{1}{3}$ gain = 50%.

$$\text{We know, } S.P = C.P \left(1 + \frac{\text{gain \%}}{100}\right)$$

$$\Rightarrow S.P = \frac{1}{3} \left(1 + \frac{50}{100}\right)$$

$$= \frac{1}{3} \times \frac{3}{2} = \frac{1}{2}$$

$\therefore$ For 1 Rs I will buy $\left(\frac{1}{\frac{1}{2}}\right)$ toffees
= 2 toffees

Ans: B

04 $S.P = 56 + 8.50 = 64.50$

Ans: A

05 $C.P = 4750 + 150 = \text{Rs } 4900.$

$$S.P = \text{Rs } 3540.$$

$$\text{Loss} = 4900 - 3540$$

$$= \text{Rs } 1360$$

Ans: A

06 $C.P = 375 + 580 + 428 = \text{Rs } 1383$

$$S.P = 436 + 635 + 350 = 1421 \text{ Rs.}$$

$$\text{Gain} = 1421 - 1383 = \text{Rs } 38$$

Ans: B



07. Given 1 month $\rightarrow$ Rs 1 $\rightarrow$ 3 paise interest ⑦
8 months $\rightarrow$ Rs 500 $\rightarrow$?

$$\begin{aligned}\therefore \text{Interest} &= \frac{8}{1} \times 500 \times 3 \\ &= 12000 \text{ paise} \\ &= \text{Rs } 120\end{aligned}$$

Ans: B

08 Interest = Rs 950 - Rs 750 = Rs 200

$$I = \frac{PTR}{100}$$

$$\Rightarrow 200 = \frac{750 \times 5 \times R}{100} \Rightarrow R = \frac{16}{3} \% = 5\frac{1}{3} \%$$

Ans: D

09. We know $A = P + I$

Given $2A = P + I$

$$\Rightarrow P = I$$

$$\Rightarrow P = \frac{PTR}{100}$$

$$\Rightarrow R = \frac{100}{1}$$

$$\Rightarrow R = \frac{100}{30}$$

$$R = 3\frac{1}{3} \%$$

Ans: A

10. $I = \frac{PTR}{100}$

$$\Rightarrow 49 = \frac{350 \times T \times 7}{100} \Rightarrow T = 2 \text{ years} \quad \text{Ans: D}$$

JEE ADVANCED LEVEL

11. Conceptual

C, D

12. statement I:

(9)

$$\text{Loss} = \text{C.P} - \text{S.P}$$

$$\Rightarrow 189.99 = 825.76 - \text{S.P}$$

$$\Rightarrow \text{S.P} = 825.76 - 189.99 \\ = \text{Rs } 635.17 \text{ (True)}$$

Statement II:

$$\text{C.P} = 960 + 160 = \text{Rs } ~~1120~~ 800$$

$$\text{gain \%} = \frac{160}{800} \times 100 = 20\% \text{ (True)}$$

Ans. A

13

$$\text{S.P} = \text{Rs } 18,540$$

$$\text{Loss} = \text{Rs } 1935$$

$$\text{Loss} = \text{C.P} - \text{S.P}$$

$$\text{C.P} = \text{Rs } 18540 + \text{Rs } 1935 = \text{Rs } 20,475$$

Ans: C

14

$$A = P + I$$

$$7670 = 6500 + \frac{6500 \times T \times 6}{100}$$

$$\Rightarrow T = 3 \text{ years}$$

Ans: 3

$$15 \quad a) \quad S.P = C.P \left(1 + \frac{9\%}{100}\right)$$

$$\Rightarrow 928 = C.P \left(1 + \frac{16}{100}\right)$$

$$\Rightarrow C.P = \text{Rs } 800 (r)$$

$$b) \quad S.P = C.P \left(1 - \frac{2\%}{100}\right)$$

$$\Rightarrow 12 = C.P \left(1 - \frac{4}{100}\right)$$

$$\Rightarrow C.P = 12 \frac{1}{2} (p)$$

$$c) \quad S.P = C.P \left(1 + \frac{9\%}{100}\right)$$

$$\Rightarrow 324 = C.P \left(1 + \frac{20}{100}\right)$$

$$\Rightarrow C.P = \text{Rs } 270 (s)$$

$$d) \quad S.P = C.P \left(1 - \frac{2\%}{100}\right)$$

$$\Rightarrow 118 = C.P \left(1 - \frac{10}{100}\right)$$

$$\Rightarrow C.P = \text{Rs } 131.11 (q)$$

Ans: r, p, s, q

$\Rightarrow$ THE END $\Leftarrow$