SSC Exam Questions

(T2 2021)

Q.1 The cost price of an article is ₹ 2800. Profit as a percentage of selling price is 20 percent. What is the actual profit (in ₹)?

Let SP = 100 . Profit → 20% on SP = $\boxed{20}$, then CP = SP - profit
= 100 - 20 = 80

actual profit % → $\frac{20}{80} \times 100\% = 25\%$ (on CP)

Actual profit = 25% of 2800 = 700

(CGL T1 2021)

Q.1 A sold a mobile phone to B at a gain of 25% and B sold it to C at a loss of 10%. If C paid ₹5,625 for it, how much did A pay (in ₹) for the phone?

CP of A = 100   SP of A = 125 = CP of B   SP of B = $\frac{9}{10} \times 125$ = CP of C

$\frac{9}{10} \times 125 \longrightarrow 100$

$(1 - \frac{1}{10}) \times 125$

$1 \longrightarrow \frac{100 \times 10}{9 \times 125}$

$5625 \longrightarrow \frac{100 \times 10}{9 \times 125} \times \cancel{5625}\, 5 = 5000$ ✓

(CGL T2 2022)

Q.2 The sum of the curved surface area and total surface area of a solid cylinder is 2068 cm². If radius of its base is 7 cm, then what is the volume of this cylinder? (use π=22/7)

$\pi r^2 h$

Curved surface area = $2\pi r h$

Total surface area = $2\pi r h + \pi r^2 \cdot 2$
= $2\pi r (r+h)$

$2\pi r h + 2\pi r (r+h) = 2068$

⟹ $2\pi r h (h + r + h) = 2068$

⟹ $2 \cdot \frac{22}{\cancel{7}} \times \cancel{7} (r + 2h) = 2068$

∴ $(7 + 2h) = \frac{2068}{44}$

$7 + 2h = 47$
⟹ $h = 20$ cm

- 2-0+6-0 **Ans** ✗ 1. 2060 cm³
- 2-4+8-0 ✗ 2. 2480 cm³
- 3-0+8-0 ✔ 3. 3080 cm³
- 2-7+6-0 ✗ 4. 2760 cm³

$\frac{22}{7}$ → $2\pi r (r + 2h)$

$\| \quad 2 \, (\pi) \, r$

Q.3 If sinθ = (9/41), 0° < θ < 90° then what is the value of cotθ?

40/9

S (S)ome   C curly   t through   41 ╱|9 $\sqrt{41^2 - 9^2}$ $(40+1)^2$
P (P)eople   b black   p proper   ╱_| $= \sqrt{1681 - 81}$ $= 1600 + 80 + 1$
h (h)ave   h hair   b brushing ? 40 $= \sqrt{1600}$ $= 1681$
                                        ° 40 $= 40$

(CHSL 22)

Q.5 A can finish a piece of the work in 16 days and B can finish it in 12 days. They worked together for 4 days and then A left. B finished the remaining work. For how many total number of days did B work to finish the work completely?
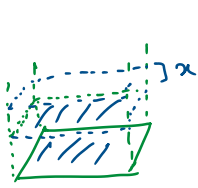
Efficient

TW = LCM (16, 12, 4) = 48 units

eA = 48/16 = 3   e(A+B) = 4(3+4)   remaining = (48-28)u
eB = 48/12 = 4   = 28 units   = 20 u

                                                    B will do remaining
Total days = (4+5)d = 9 days   work in $\frac{20}{4}$ = 5 days

TW = 48
eA = 3   4x(A+B) = 28
eB = 4 $\frac{48-28}{4}$ = 5

SSC Exam Questions

Sunday, March 12, 2023   5:00 PM

cuboidal

Q.6 A solid cube of side 8 cm is dropped into a rectangular container of length 16 cm, breadth 8 cm and height 15 cm which is partly filled with water. If the cube is completely submerged, then the rise of water level (in cm) is:

height $= x$, $l = 16, b = 8$

volume of water displaced $= x \times 16 \times 8$ cm$^3 = 8^3$ cm^3

$\Rightarrow x \times 2 \times 8 \times 8 = 8^3$

$\Rightarrow x = 4$ cm

Q.7 If $(x + 6y) = 8$, and $xy = 2$, where x > 0, what is the value of $(x^3 + 216y^3)$?

$\begin{cases} x=1, y=2 \\ x=2, y=1 \end{cases}$

$2 + 6 \times 1 = 8$ $x = 2, y = 1$ $8 + 216 = 224$
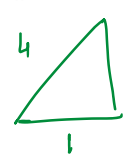
Q.10 If $4\sin^2\theta = 3(1 + \cos\theta)$, $0° < \theta < 90°$, then what is the value of $(2\tan\theta + 4\sin\theta - \sec\theta)$?

$4 s^2 = 3(1+c)$
$4(1-c^2) = 3(1+c)$
$4(1-c) = 3$
$1 - c = \frac{3}{4}$
$c = \frac{1}{4}$ ✓

$(1+c) \neq 0$
Shy?

$\sqrt{4^2 - 1^2} = \sqrt{15}$

$\boxed{3\sqrt{15} - 4}$

$2 \cdot \frac{\sqrt{15}}{1} + 4 \cdot \frac{\sqrt{15}}{4} - 4$

$\Rightarrow 2\sqrt{15} + \sqrt{15} - 4$

Q.11 The lengths of the three sides of a right-angled triangle are (x − 1) cm, (x + 1) cm and (x + 3) cm, respectively. The hypotenuse of the right-angled triangle (in cm) is:

3, 4, 5   5, 12, 13   6 8 10 → $x = 7$ 10cm

Q.16 Find the greatest number 23a68b, which is divisible by 3 but NOT divisible by 9.

$2 + 3 + 6 + 8 + (a+b) → 19 + a + b$. Put $a = 9$ → $28 + b$ 3n & not 9n

239685 $b = \cancel{2}, 5, \cancel{8} → \overline{36}$

CP $\longrightarrow$ SP

profit

SP > CP → $\frac{P}{CP} \times 100\%$

Loss   SP < CP → $\frac{L}{CP} \times 100\%$

MP $\xrightarrow{\text{discount}}$ SP

↗ → mark-up

CP

Tax

✓ SP = ___ + tax

retail price = SP + tax

Q.2 When A commodity is sold for Rs. 34.80, there is a loss of 25%. What is the cost price of the commodity?

(A) Rs. 46.40 ✓
(B) Rs. 26.10
(C) Rs. 43
(D) Rs. 43.20

SP = 34.8   loss 25% $= \frac{1}{4}$

CP = 100, SP = 75

SP $= (100 - 25)\%$ of CP

11.6

$34.8 = \frac{3}{4} CP$

$\approx (1 - \frac{L}{100}) CP$

$\Rightarrow$ CP = 46.4

$= (1 - \frac{1}{4}) CP = \frac{3}{4} CP$

d = SP − MP

$d\% = \frac{d}{MP} \times 100\%$

Q.3 If the S.P. of an article for is 4/3 times its C.P. the profit percent is……

(A) 33 1/3% ✓
(B) 25 1/4 %
(C) 20 ½ %
(D) 20 ¾ %

SP = $\frac{4}{3}$ CP

$P = \frac{4}{3} CP - CP = \frac{1}{3} CP$

$\frac{P}{CP} = \frac{1}{3} \Rightarrow 33\frac{1}{3}\%$

Profit, Loss and Discount

Q.4 By selling an article for Rs. 19.50, a dealer makes a profit of 30%. By how much should he increase his S.P. so as to make a profit of 40%?

(A) Rs. 1.50 ✓

(B) Rs. 1.75

(C) Rs. 2

(D) Rs. 3

— SP   *1st*   *2nd*

$$1.3\,CP = 19.5$$
$$CP = 15$$
$$Increase = (15 \times 1.4 - 19.5)$$
$$= (21 - 19.5) = 1.5$$

Q.5 The C.P. of 20 articles is the same as S.P. of 15 articles. The profit percent is....

(A) 25%

(B) 30%

(C) 33 1/3 % ✓

(C) 50%

$$20\,CP = 15\,SP$$
$$\Rightarrow \boxed{\frac{CP}{SP} = \frac{15}{20}}$$
$$CP = 15$$
$$SP = 20$$
$$P\% = \frac{5}{15} \times 100\%$$

Q.6 A fruit seller purchases oranges at the rate of 3 for Rs. 5 and sells them at 2 for Rs. 4. His profit is.......

(A) 10%

(B) 11%

(C) 20% ✓

(D) 25%

6 orange

$$CP = 10$$
$$SP = 12$$
$$profit = 20\%$$

$$Cp = \frac{5}{3}$$
$$SP = 2$$
$$\frac{2 - \frac{5}{3}}{\frac{5}{3}}$$

Q.8 A man buys eggs at 2 for Rs. 1 and an equal number at 3 for Rs. 2 and sells the whole at 5 for Rs. 3. His gain or loss percent is.......

(A) 2 2/7 %

(B) 3 6/7 %

(C) 3 2/7 %

(D) 2 6/7 % ✓

$$30 \rightarrow 15$$
$$30 \rightarrow 20$$
$$Cp = 35$$
$$60 \rightarrow 36$$
$$SP = 36$$

$$\%\, of\, p = \frac{100}{35}^{20}_{7} \quad 2\frac{6}{7}\%$$

Q.9 A sells a bicycle to B at a profit of 20% and B sells it to C at a profit of 25%. If C pays Rs. 1500, what did A pay for it?

(A) Rs. 825

(B) Rs. 1000 ✓

(C) Rs.1100

(D) Rs. 1125

$$cf \; A = 100 ✓$$
$$sp \; A = CP \; B = 120 ✓$$
$$sp \; B = CP \; C = 1.25 \times 120 = 150$$

$$150 : 1500$$
$$100 : \underline{\quad ?\quad}$$
$$\underline{1000}$$

Q.10 Two mixers and a TV costs Rs. 7000, while 2 TVs and a mixer cost Rs. 9800. The values of one TV is......

(A) Rs. 2800

(B) Rs. 2100

(C) Rs. 4200 ✓

(D) Rs. 8400

$$4x + 2y = 14000$$
$$- \quad x + 2y = 9800$$
$$\overline{\qquad\qquad}$$
$$3x = 4200$$
$$\Rightarrow x = 1400 - M$$

$$1400 + 2y = 9800$$
$$\Rightarrow y = 4200$$

Reference (right column):

$$1 - 100\%$$
$$\tfrac{1}{2} - 50\%$$
$$\tfrac{1}{3} - 33\tfrac{1}{3}\%$$
$$\tfrac{1}{4} - 25\%$$
$$\tfrac{1}{5} - 20\%$$
$$\tfrac{1}{6} - 16\tfrac{2}{3}\%$$
$$\tfrac{1}{7} - 14\tfrac{2}{7}\%$$
$$\tfrac{1}{8} - 12\tfrac{1}{2}\%$$
$$\tfrac{1}{9} - 11\tfrac{1}{9}\%$$
$$\tfrac{1}{10} - 10\%$$
$$\tfrac{1}{11} - 9\tfrac{1}{11}\%$$

$$\tfrac{1}{5} = 20\%$$

Profit, Loss and Discount

Thursday, April 13, 2023   8:00 AM

A tradesman marks his goods at 35% above its cost price and allows a discount of 17.5% for purchase in cash. What profit per cent does he make ?

- (A) 11.25
- (B) 12.125
- (C) 11.125
- (D) 11.375 ✓

$CP = 100$

$MP = 135$

$SP = (100 - 17.5)\% \text{ of } MP$

$= \dfrac{82.5 \times 135}{100}$

$= 111.375$

$$\begin{array}{r} 825 \\ 135 \\ \hline 4125 \\ 2475 \times \\ 825 \times \times \\ \hline 111.375 \end{array}$$

A trader sells his goods at 20% profit. Had he bought it at 10% more and sold it for Rs. 70 more, he would have earned a profit of 25%. Find the cost price of the goods.

- (A) Rs. 200
- (B) Rs. 800
- (C) Rs. 400 ✓
- (D) Rs. 600

$CP = x \rightarrow$

$SP = 1.2x$

$\begin{cases} CP = 1.1x \checkmark \\ SP = 1.2x + \boxed{70} \end{cases}$

$0.1x + 70 = \dfrac{1.1x}{4}$

$\Rightarrow \quad 70 = 0.175x$

$\Rightarrow \quad 10 = 0.025x$

A trader sold two bullocks for Rs. 8,400 each, neither losing nor gaining in total. If he sold one of the bullocks at a gain of 20%, then the other is sold at a loss of (break even)

$SP = 8400$
$CP = 9800$

$\dfrac{1400}{9800} \quad \dfrac{1}{7}$

- (A) 20%
- (B) $18\dfrac{2}{9}$ %
- (C) $14\dfrac{2}{7}$ % ✓
- (D) 21%

$8400 \rightarrow 16800 \checkmark$

$1.2 \times (B_1) = 8400$

$\Rightarrow \dfrac{12}{10} B_1 = 8400$

$\Rightarrow \quad B_1 = 7000$

$CP = 16800 - 7000$

$\quad = 9800$

After getting two successive discounts Shalini got a shirt at Rs. 136 whose marked price is Rs. 200. If the second discount is 15% find the first discount.

SP   MP

- (A) 12.5%
- (B) 15%
- (C) 25%
- (D) 20% ✓

$100 - x\% \text{ of } 200$

$= \dfrac{100 - x}{100} \times 200$

$= 2(100 - x)$

$\dfrac{85}{100} \times 2(100 - x) = 136^{8}$

$100 - x = 80$

$x = 20$

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