

[A] PERCENTAGE (ANSWERS) <12>

1. (b) Required answer is: $176000 \times \left(1 + \frac{5}{100}\right)^2$
 $= \left(176000 \times \frac{441}{400}\right) = \boxed{194040}$

2. (c) Required answer is: $Z = 20 + 30 + \left(\frac{20 \times 30}{100}\right) = \boxed{56\%}$

3. (b) Loser = 40%; Winner = 60%.
 $\therefore$ According to question: $(60 - 40)\% = 15000$
 $\Rightarrow \frac{20}{60}\% = 15000$
 $\therefore 60\% = \boxed{45000}$

4. (a) Let the income is $\text{₹ } 100x$.
 Save = $10x$; Exp = $90x$
 Then; at present the income is $\text{₹ } 110x$
 Save is $99x$
 Exp is $10x$
 $\therefore$ Exp increased by $= \left[\frac{(99 - 90)x \times 100}{90x} \right] = \boxed{10\%}$

5. (c) Let one kg of sugar earlier = $\text{₹ } 100$
 $\therefore$ 50 kg of sugar earlier = $\text{₹ } 5000$
 Now 1 kg of sugar be = $\text{₹ } 97$
 Quantity to buy now = $\left(\frac{5000}{97}\right) = \boxed{51.5 \text{ kg}}$

6. (c) Let D got x marks.
 $\therefore x \times \frac{160}{100} \times \frac{140}{100} \times \frac{125}{100} = 320 \Rightarrow x = \frac{800}{7}$
 $\therefore$ Required percentage = $\left[\frac{160}{\frac{800}{7}} \times \frac{1}{500} \times 100 \right]$
 $= \boxed{23\% \text{ (approx)}}$

[A] PERCENTAGE (ANSWERS) (13)

7. (d) Required answer is: $\frac{100 \times 30}{(100 - 30)} = \frac{3000}{7} = 428$

8. (b) Let the total no of children be x .

$\therefore$ According to the question:

$$x \times \left(\frac{20x}{100}\right) = 500 \Rightarrow x = 50$$

$\therefore$ Required no of pencil each child receive: $\frac{500}{50} = 10$

9. (c) Total percentage of 3 subjects = $(3 \times 70) = 210$

$\therefore$ Percentage in Social = $\{210 - (60 + 80)\} = 70\%$

10. (c) Let the no of pages be x .

$\therefore$ According to the question:

$$45 \times 30 \times 60 = x \times 40 \times 32$$

$$\Rightarrow x = 63.28 \approx 63$$

Now, Required percentage = $\left[\frac{63 - 45}{45} \times 100 \right]$

$$= 40\%$$

(E) SIMPLE INTEREST (ANSWERS) (14)

1. (a) SI of 3 years = ₹ 8400.

SI of 6 years = ₹ 12000

∴ SI of 1 year = $\frac{(12000 - 8400)}{3} = ₹ 1200$

∴ P = $\{8400 - (1200 \times 3)\} = ₹ 4800$

R = $\frac{1200 \times 100}{4800 \times 1} = 25\%$

2. (d) Ratio = $\frac{(P \times R \times 4)/100}{(P \times R \times 12)/100} = \frac{4}{12} = 1:3$

3. (a) Let the sum of money be ₹ x.

∴ $\frac{x \times 4 \times 4}{100} + \frac{x \times 6 \times 3}{100} + \frac{x \times 7 \times 10}{100} = 8528$

⇒ $104x = 852800 \Rightarrow x = 8200$

4. (c) Let the principal be ₹ 1.

∴ $P_1 = 1$	$P_2 = 1$
$A_1 = 3$	$A_2 = 2$
$I_1 = 2$	$I_2 = 1$
$T_1 = 16\frac{2}{3}\%$	$T_2 = ?$

∴ $\frac{I_1}{I_2} = \frac{T_1}{T_2}$

⇒ $\frac{2}{1} = \frac{16}{T_2}$

⇒ $T_2 = 8\frac{1}{3}\%$

5. (a) $(12.5\% - 10\%) = 2500$

⇒ $2.5\% = 2500$

⇒ $\frac{2.5}{2} \times \frac{1}{100} = 2500$

∴ Principal is →

$₹ 1,00,000$

SIMPLE INTEREST (ANSWERS) (15)

6. (b) Let the sum of money lent at 10% p.a. is £x.

According to the question:

$$\frac{x \times 10 \times 1}{100} + \frac{(1500 - x) \times 6 \times 1}{100} = 100$$

$$\Rightarrow 10x + 9000 - 6x = 10000$$

$$\Rightarrow 4x = 1000$$

7. (c) Let the sum be £p.

$$\therefore \frac{p \times 3 \times 3}{100} = 450$$

8. (c) Let the difference between the rate of interest is R%.

According to the question: →

$$\frac{2500 \times R \times 2}{100} = 15$$

$$\Rightarrow R = 0.3\%$$

9. (a) Let the rate of interest be R%.

$$\therefore \frac{20,000 \times R \times 5}{100} + \frac{30,000 \times R \times 2}{100} = 12800$$

$$\Rightarrow 1600R = 12800$$

$$\Rightarrow R = 8\%$$

10. (a) Let the principal be £x.

$$\therefore \text{Amount (A)} = \text{£} \frac{7x}{4}$$

Now, the  Interest (I) = $\left(\frac{7x}{4} - x\right) = \frac{3x}{4}$

$$\therefore \frac{3x}{4} = \frac{x \times R \times 5}{\frac{100}{25} \times 5}$$

$$\Rightarrow R = 15\%$$

[C] PROFIT & LOSS (ANSWERS) <16>

1. (a) Now, 110% of $SP = 616 \Rightarrow SP = ₹ 560$

$$\therefore CP = \left(\frac{100}{112} \times 560 \right) = \boxed{₹ 500}$$

2. (a) Let the List price be ₹ x ; then.

$$(80\% \text{ of } x) - (70\% \text{ of } x) = 500$$

$$\Rightarrow 10\% \text{ of } x = 500 \Rightarrow \boxed{x = 5000}$$

3. (a) SP after 1st discount $= \left(2000 \times \frac{80}{100} \right) = ₹ 1600$

$$\text{Net } SP = ₹ 1400$$

$$\therefore \text{Required discount} = \left[\frac{(1600 - 1400)}{1600} \times 100 \right] = \boxed{12.5\%}$$

4. (c) Let the labeled price be ₹ x .

$$\therefore 88\% \text{ of } 80\% \text{ of } x = 704 \Rightarrow \boxed{x = 1000}$$

5. (d) Let the CP be ₹ x ; then

$$(107.5\% \text{ of } x) - (97.5\% \text{ of } x) = 100$$

$$\Rightarrow 10\% \text{ of } x = 100$$

$$\Rightarrow x = 1000$$

$$\therefore \text{Required } SP = \left(\frac{112.5}{100} \times 1000 \right) = \boxed{₹ 1125}$$

6. (a) Total $SP = (8000 \times 2) = ₹ 16000$

$$\therefore \text{Total } CP = ₹ 16000$$

$$SP \text{ of the 1st} = 8000; \text{ then } CP \text{ of the 1st} = \left(\frac{100}{125} \times 8000 \right) = ₹ 6400$$

$$\therefore CP \text{ of the 2nd} = (16000 - 6400) = ₹ 9600$$

$$\therefore \text{Loss on 2nd Commodity} = \left[\frac{(9600 - 8000)}{9600} \times 100 \right] = \boxed{16\frac{2}{3}\%}$$

[C] PROFIT & LOSS (ANSWERS) <17>

8. (b) Now; Loss % in overall transaction is: $\frac{(20)^2}{100} = 4\%$

Now; Total CP = $\left(\frac{100}{96} \times 2\right)$ lakhs = $\frac{25}{12}$

$\therefore$ Loss in ₹ $\rightarrow \left(\frac{25}{12} - 2\right) = \boxed{\text{₹ } \frac{1}{12} \text{ lakh}}$

9. (c) $\left(\frac{8}{20} \times 10\right) + \left(\frac{12}{20} \times 20\right) = 16\%$

$\therefore$ Required profit is $\boxed{16\%}$

1. (a) Let the marked price of each pen be ₹ 1.

$\therefore$ The CP of 40 pens = ₹ 36.

$\therefore$ SP of 40 pens = (99% of ₹ 40) $\Rightarrow$ ₹ 39.60

$\therefore$ Profit (%) = $\left[\frac{39.60 - 36}{36} \times 100\right] = \boxed{10\%}$

10. (a) LCM of 25 and 24 is 600.

Let the total no of apples are 600.

Apple	CP (₹)	Apple	SP (₹)
25	10	24	12
$\times 24$	$\times 24$	$\times 25$	$\times 25$
600	240	600	300

$\therefore$ Profit (%) = $\left[\frac{300 - 240}{240} \times 100\right] = \boxed{25\%}$

(D) TIME & WORK (ANSWERS) <18>

1. (b) $(2 \times 10)B = (3 \times 5)G$ $\left| \begin{array}{l} 1B + 1G \\ = \left(\frac{3}{4} + 1\right) = \frac{7}{4}G \\ \therefore \frac{7}{4} \times D = 3 \times 5 \\ D = \frac{60}{7} = 8\frac{4}{7} \text{ days} \end{array} \right.$

$4B = 3G$
 $\Rightarrow B = \frac{3}{4}G$

2. (c) Let the remaining work done by B in x days.

$\therefore \frac{6}{20} + \frac{6+x}{30} = 1 \Rightarrow x = \boxed{15 \text{ days}}$

3. (a) Ratio of Work done

$$\begin{aligned} P:Q &= 2:1 \\ Q:R &= 3:1 \\ \hline \therefore P:Q:R &= 6:3:1 \end{aligned}$$

Now, Time Ratio $\rightarrow$

$$P:Q:R = \frac{1}{6}:\frac{1}{3}:1 \Rightarrow 1:2:6$$

According to the question:

$$\frac{1}{x} \left(1 + \frac{1}{2} + \frac{1}{6} \right) = \frac{1}{30}$$

$$\frac{1}{x} \times \frac{10}{6} = \frac{1}{30}$$

$$\Rightarrow x = 50$$

$\therefore$ Work done by P alone is $\boxed{50 \text{ days}}$

(D) TIME & WORK (ANSWERS) <19>

1. (a) LCM of 4 and 6 is 24.

Let the total work be 24 units.

$$\therefore \text{A's efficiency} \rightarrow \frac{24}{4} = 6 \text{ units}$$

$$\text{B's efficiency} \rightarrow \frac{24}{6} = 4 \text{ units}$$

$$\text{At present the efficiency of A} = \left(\frac{4}{3} \times 6\right) = 8 \text{ units}$$

Let B's efficiency reduce by y times; then

$$\text{efficiency of B} = (4 - y) \text{ units}$$

$$\therefore (A+B)'s \text{ one day's work in second case:}$$

$$(8 + 4 - y) = (12 - y) \text{ units}$$

$$\text{Now, By the condition: } 2(12 - y) = 24$$

$$\Rightarrow y = 0$$

$\therefore$ Required answer there is no such reduction in efficiency of B.

5. (a) LCM of 24 and 32 is 96.

Let the total work be 96 units.

$$\therefore \text{A's efficiency} = \left(\frac{96}{24}\right) = 4 \text{ units}$$

$$\text{B's efficiency} = \left(\frac{96}{32}\right) = 3 \text{ units}$$

$$(A+B)'s \text{ efficiency} = 7 \text{ units.}$$

$$\therefore \text{In 12 days } (A+B)'s \text{ efficiency} = 84 \text{ units.}$$

$\therefore$ C complete the remaining $\rightarrow (96 - 84) = 12 \text{ units}$ of job.

$$\text{Now; C's share} \rightarrow \left(\frac{12}{96} \times 2112\right) = \boxed{\text{£ } 264}$$

(D) TIME & WORK (ANSWERS) <20>

6 (b) Ratio of efficiency $\rightarrow$ $A : B$
 $3 : 1$
 $1 : 3$

Time Ratio $\rightarrow$

Now; $(3x - x) = 60$
 $\Rightarrow 2x = 60$
 $\Rightarrow x = 30$
 $\Rightarrow 3x = 90$

$(A+B) \rightarrow$ Do the Work:

$$\frac{30 \times 90}{120} = 22\frac{1}{2}$$

7 (b) Lcm of 20, 30 and 60 is 60.

Let the Work be 60 units.

$\therefore$ Efficiency of A $= \left(\frac{60}{20}\right) = 3$ units

" " of B $= \left(\frac{60}{30}\right) = 2$ units

" " of C $= \left(\frac{60}{60}\right) = 1$ unit

$\therefore$ Work done by A, B and C after 3 days is $\rightarrow$

$\{(3 \times 3) + 2 + 1\} = 12$ units

$\therefore$ 60 units of job completed in $(3 \times 5) = 15$ days

8 (c) B alone can do the Work $= \left(\frac{10 \times 3}{2}\right)$ days
 $= 30$ days

Now at present B can do the Work in 60 days.

$\therefore$ A & B together can do it in: $\frac{60 \times 30}{90} = 15$

[D] TIME & WORK (ANSWERS) <21>

9. (a) LCM of 20 and 30 is 60

Let the total work be 60 units

Work done by X in 1 day is $\rightarrow \left(\frac{60}{30}\right) = 2$ units

Work done by Y in 1 day is $\rightarrow \left(\frac{60}{20}\right) = 3$ units

Work done by X and Y in 1 day is $\rightarrow 5$ units

Work done by X and Y in 6 days is $\rightarrow 30$ units

$\therefore$ Remaining work is $\rightarrow (60 - 30) = 30$ units

Now; $\frac{30}{60} = \boxed{\frac{1}{2} \text{ part}}$ of work is left

$$10. (d) \frac{M_1 D_1}{W_1} = \frac{M_2 D_2}{W_2} \quad \left[\begin{array}{l} \therefore \frac{6}{9} = \frac{2}{3} \text{ part} \\ \text{Rem} = \left(1 - \frac{2}{3}\right) = \frac{1}{3} \text{ part} \end{array} \right]$$

$$\Rightarrow \frac{12 \times 6}{\frac{2}{3}} = \frac{18 \times D_2}{\frac{1}{3}}$$

$$\Rightarrow 12 \times 6 \times \frac{1}{3} = 18 \times \frac{2}{3} \times D_2$$

$$D_2 = \boxed{2 \text{ days}}$$

[E] RATIO & PROPORTION (ANSWERS) (22)

1. (C) Let the respective salaries are
 $\text{₹}500x$; $\text{₹}300x$ and $\text{₹}200x$.

Now; Required Ratio be $\rightarrow A:B:C \rightarrow$

$$\left(\frac{500x \times 120}{100} \right) : \left(\frac{300x \times 110}{100} \right) : \left(\frac{200x \times 120}{100} \right)$$

$$(\cancel{5} \times 120) : (3 \times \cancel{110}^{22}) : (2 \times \cancel{120}^{24})$$

$$20 : 11 : 8$$

2. (C) $\therefore (S-R) \Rightarrow (7x-6x) = 500$

Now; $x = 500 \Rightarrow P \text{ get} \rightarrow 2x = \boxed{1000}$

3. (A) Let the numbers are a, b and c .

Now; $a:b = 3:2$
 $b:c = 5:3$

$$\frac{a:b}{b:c} = \frac{3:2}{5:3} \Rightarrow a:b:c = 15:10:6$$

$\therefore (15+10+6)x = 62$
 $\Rightarrow x = 2$
 $\therefore b = 10x = \boxed{20}$

4. (D) Let the initial price of the dress $\Rightarrow 10x$ and $15x$.

$\therefore$ According to the question:

$$\frac{11x}{15x+400} = \frac{4}{7} \Rightarrow 17x = 1600$$

$$\Rightarrow x = 94.11 \approx 94$$

$$\Rightarrow 77x = 60x + 1600 \Rightarrow 10x = \boxed{\text{₹}940}$$

5. (B) Now; $(2+9) = 11$

66 Can divide by 11.

$\therefore$ Required answer is $\boxed{2:9}$

[E] RATIO & PROPORTION (ANSWERS) <23>

6. (a) According to the question $\rightarrow$

$$\left[(25x) + (10x \times 2) + (5x \times 3) \right] / 100 = 15$$

$$\Rightarrow (25x + 20x + 15x) = 4500$$

$$\Rightarrow 60x = 4500$$

$$\Rightarrow x = \boxed{75}$$

7. (c) $12 : 24 :: 24 : x$

$$\frac{12}{24} = \frac{24}{x} \Rightarrow \boxed{x = 48}$$

8. (a) Income Ratio of A & B $\rightarrow 6:5 \rightarrow 12:10$
Expenditure Ratio of A & B $\rightarrow 9:7 \rightarrow 9:7$

According to the question: $(10-7) = 1500$
 $\Rightarrow 3 = 1500$
 $\Rightarrow 1 = 500$
 $\Rightarrow 22 = \boxed{11000}$

9. (b)

<u>Horse</u>	<u>Fox</u>
8	5
3	6

 $\rightarrow$ Horse : Fox = $48:15$
 $= \boxed{16:5}$

10. (d) $12x - 5x = 21$

$$\Rightarrow 7x = 21$$

$$\Rightarrow x = 3$$

Present ages are 15 yr and 36 yr.

$$\therefore \text{After 3 yrs} = (15+3) : (36+3)$$

$$= 18 : 39$$

$$= \boxed{6:13}$$