

12. PERCENTAGES

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Class: VII, MATHEMATICS

INTEGRATED. SOLUTIONS

TEACHING TASK

JEE MAINS LEVEL

01. Total No. of marks = $\frac{100 \times 695}{86.875} = 800$ Ans: C

02. 24 Carat $\rightarrow 100$
22 Carat $\rightarrow x$
 $24 : 100 = 22 : x$
 $\Rightarrow x = \frac{100 \times 22}{24} = 91\frac{2}{3}\%$ Ans: D

03. Let the original number be 100.
Increase by 10%.
 $\therefore$ Now, the number is 110.
Decrease by 10% means
Now, the number is decreased by = $\frac{10 \times 110}{100} = 11$
Now, the number is $110 - 11 = 99$
i.e. 100 becomes 99.
i.e. 1% decrease. Ans: A

04. $63\% \text{ of } 2\frac{5}{7} = \frac{25}{7}$ (2)

$$= \frac{63}{100} \times \frac{25}{7} = 2.25$$

Ans: A

05 $860\% \text{ of } 50 + 50\% \text{ of } 860$

$$= \frac{860}{100} \times 50 + \frac{50}{100} \times 860$$

$$= 430 + 430 = 860$$

Ans: C

06 $25\% \text{ of } 1600 = \frac{25}{100} \times 1600 = 400$

$$5\% \text{ of } 400 = \frac{5}{100} \times 400 = 20$$

Ans: C

07 $\frac{x}{100} \times y + \frac{y}{100} \times x$

$$= \frac{2xy}{100} = 2 \times \frac{xy}{100} = \frac{2x}{100} \times y$$

$$= 2\% \text{ of } xy$$

Ans: C

08 A man spends $66\frac{2}{3}\% = \frac{200}{3}\% = \frac{200}{300} = \frac{2}{3}$

of his income

i.e. $\frac{1}{3}$ of his income he saved.

Given $\frac{1}{3}$ of his income = Rs 1200

$$\Rightarrow \text{His income} = 3 \times \text{Rs } 1200 = \text{Rs } 3600.$$

$$\text{His Expenses} = 3600 - 1200 = 2400$$

Ans: B



Q9 Given alloy contains 65% Aluminium. (3)
i.e. 35% Zinc.

$$\text{i.e. } \frac{35}{100} \text{ kg Zinc}$$

$$\text{In 400 kg alloy} = \frac{35}{100} \times 400 \text{ Zinc} \\ = 140 \text{ kg}$$

Ans: B

10 preeti scored = $\frac{510}{600}$

$$\text{preeti \%} = \frac{510}{600} \times 100 = 85\%$$

$$\text{poonah scored} = \frac{540}{600}$$

$$\text{poonah score \%} = \frac{540}{600} \times 100 = 90\%$$

$$\text{Difference in percentages} = 90\% - 85\% = 5\%$$

Ans: C

11. $6.25\% = \frac{6.25}{100} = \frac{625}{10000} = \frac{1}{16}$

Ans: B

12. $\% \text{ Error} = \frac{\text{Difference}}{\text{original}} \times 100$

$$= \frac{4 - 3.75}{3.75} \times 100$$

$$= 6\frac{2}{3}\% \text{ or } \frac{20}{3}\%$$

Ans: A

13 Statement I: 20% of 200 (4)

$$= \frac{20}{100} \times 200 = 40 \text{ (True)}$$

Statement II: x% of y = $\frac{x}{100} \times y$ (False)

Ans: C

14 % Error = $\frac{\text{Difference}}{\text{Original}} \times 100$

$$= \frac{\frac{5}{3} - \frac{3}{5}}{\frac{5}{3}} \times 100$$

$$= 64\%$$

Ans: D

15 25% petrol saving $\rightarrow \frac{1}{4}$ of petrol.

$\frac{1}{4}$ of total petrol = 20 lit

$\Rightarrow$ total petrol = 80 lit

Consumption = 80 lit - 20 lit
 = 60 lit

Ans: 60

16 a) percentage = $\frac{\text{part}}{\text{whole}} \times 100 = \frac{2}{50} \times 100 = 4\% (S)$

b) $\frac{1}{84} \times 100 = \frac{84}{7} \times 100 = 1200\% (P)$

c) $\frac{(\frac{1}{2})}{(\frac{1}{3})} \times 100 = 150\% (Q)$

d) $\frac{130}{6500} \times 100 = 2\% (R)$ Ans: S, P, Q, R

LEARNERS TASK (CUES) (5)

01 $\frac{73}{100} = 0.73$ Ans: D

02 $\frac{x}{100} \times y$ Ans: A

03 $x \times \frac{r}{100}$ Ans: C

04 x is creased by $r\% = x \times \frac{r}{100}$

Ⓐ New quantity $= x + x \times \frac{r}{100}$

A) $(100 + r)\%$ of x

$= \left(\frac{100 + r}{100} \right) \times x = x + x \times \frac{r}{100}$ ✓

Ans: A

05 $\frac{25}{100} \times 500 = 125$ Ans: D

0 JEE MAINS LEVEL

01 $\frac{48}{80} \times 100 = 60\%$ Ans: A

02 $\frac{65}{100} \times 70 = 45.5$ Ans: C

03 $\frac{50}{100} \times 25 = \frac{25}{100} \times 50 = 25\%$ of 50
Ans: C

04. percentage increase = $\frac{\text{Difference}}{\text{original}} \times 100$ (6)

$$= \frac{5}{70} \times 100 = 7\frac{1}{7} \quad \text{Ans: B}$$

05 $\frac{80}{100} \times 1200 = 960$ Ans: C

06 $\frac{450}{600} \times 100 = 75\%$ Ans: C

07 marks in 1st test = $\frac{90}{100} \times 100 = 90$
 " " 2nd test = $\frac{60}{100} \times 150 = 90$
 " " 3rd test = $\frac{54}{100} \times 200 = 108$

total marks obtained = $90 + 90 + 108 = 288$

total max. marks = $100 + 150 + 200 = 450$

Aggregate % = $\frac{288}{450} \times 100 \% = 64\%$ Ans: B

08 % of decrease = $\frac{\text{Difference}}{\text{original}} \times 100$

$$= \frac{5000}{15000} \times 100$$

$$= 33\frac{1}{3} \% \quad \text{Ans: C}$$

09. % of servants = $100\% - (40\% + 20\% + 25\%)$
 $= 15\%$ (7)

No. of servants = $\frac{15}{100} \times 8,000,000$
 $= 1,20,000$

Ans: C

10. $x\%$ of $a = y\%$ of b

$\Rightarrow \frac{x}{100} \times a = \frac{y}{100} \times b$

$\Rightarrow ax = by \rightarrow (1)$

Now $z\%$ of $b = \frac{z}{100} \times b$

$= \frac{z}{100} \times \frac{ax}{y}$ (from (1))

$= \left(\frac{zx}{y}\right) \times \frac{1}{100} \times a$

$= \frac{zx}{y} \% \text{ of } a$

Ans C

JEE ADVANCED LEVEL

11. present salary = Rs 4200

increase percent = $12\frac{1}{2} = \frac{25}{2}\%$

Increase in salary = $\frac{25}{2}\%$ of 4200

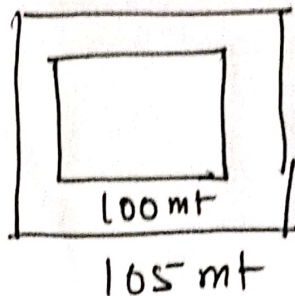
$= \frac{25 \times 100}{2 \times 100} \times 4200 = \text{Rs } 525$

$\therefore$ New salary = Rs 4725

Ans A



12. Statement I:



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$$\text{Original Area} = 10000 \text{ m}^2$$

$$\text{New Area} = ~~2025~~ 11025 \text{ m}^2$$

$$\% \text{ Increase} = \frac{\text{Difference}}{\text{Original}} \times 100$$

$$= \frac{1025}{10000} \times 100 \%$$

$$= 10.25\% \text{ (False)}$$

Statement II: Conceptual (True) Ans: D

13 % of votes by winning Candidate

$$= \frac{11628}{1136 + 7636 + 11628} \times 100$$

$$= \frac{11628}{20400} \times 100 = 57\%$$

Ans: B

14 $75\% \text{ of } x + 75 = x$

$$\Rightarrow \frac{75}{100} \times x + 75 = x$$

$$\Rightarrow x = 300$$

15 a) $25\% \text{ of } 500 = \frac{25}{100} \times 500 = 125$ (q) (9)

b) $\frac{20}{200} \times 100 = 10\%$ (r)

c) $6\frac{2}{3}\% = \frac{20}{3}\% = \frac{20}{3 \times 100} = \frac{1}{15}$ (p)

d) $\frac{10}{100} \times 1000 = \text{Rs } 100$ (s)

Ans. q, r, p, s

$\Rightarrow$ THE END $\Leftarrow$

