EXERCISE 16(B)

Question 1.

Express :

(i) Rs 5 as a percentage of Rs 25.

(ii) 80 paise as a percent of Rs 4.

(iii) 700 gm as a percentage of 2.8 kg.

(iv) 90 cm as a percent of 4.5 m.

Solution:

(i) $\frac{5}{25}$ x 100 = 20%

(ii) 80 paise as a percent of 400 paise (as/rupee = 100 paise)

$$\frac{80}{400}\times 100 = \frac{100}{5} = \mathbf{20\%}$$

(iii) 700 gm as a percentage of 2800 gm

(2·8 × 1000 = 28000 gm, ∵ 1kg = 1000 gm)

$$\frac{700}{2800}\times 100 = \frac{100}{4} = \mathbf{25\%}$$

(iv) 90 cm as a percent of 4·5 m

Or 90 cm as a percent of 450 cm

$$\frac{90}{450}\times 100 = 20\%$$

Question 2.

Express the first quantity as a percent of the second :

(i)) 40 P, ₹ 2

(ii) 500 gm, 6 kg

(iii) 42 seconds, 6 minutes

Solution:

40 p, ₹ 2 = 40 p to 200 p

(1 Rupee = 100 paise)

$$= \frac{40}{200}\times 100 = \mathbf{20\%}$$

(ii) 500 gm, 6 kg = 500 gm 6,000 gm

(∵ 1 kg = 1,000 gm)

$$= \frac{500}{6,000}\times 100 = \frac{100}{12}$$

$$= 8\frac{4}{12} = 8\frac{1}{3}\%$$

$$= \mathbf{8{\cdot}33\%}$$

(iii) 42 seconds, 6 minutes = 42 seconds, 360 seconds

(∵ 1 minutes = 60 seconds)

$$= \frac{42}{360}\times 100 = \frac{35}{3}$$

$$= 11\frac{2}{3}\% = \mathbf{11{\cdot}67\%}$$

Question 3.

Find the value of each of the following:

(i) 20% of ₹ 150

(ii) 90% of 130

(iii) 15% of 2 minutes

(iv) 7.5 % of 500 kg.

Solution:

(*i*) 20% of ₹ 150

$$= \frac{20}{100} \times 150 = ₹\,30$$

(*ii*) 90% of 130 $= \frac{90}{100} \times 130 = 119$

(*iii*) 15% of 2 minutes $= \frac{15}{100}$% 2 minutes

$= \frac{30}{100}$ minutes $= 0.3$ minutes

$= 0.3 \times 60 = 18$ seconds

(*iv*) 7·5% of 500 gm $= \frac{7{\cdot}5}{100} \times 500$

$= 7{\cdot}5 \times 5 = 37{\cdot}5$ gm

Question 4.

If a man spends 70% of his income, what percent does he save?

Solution:

Total Income = ₹ 100

70% expenses $= 100 \times \frac{70}{100} =$ ₹ 70

His saving = (100 – 70) = ₹ 30

$\therefore$ Percentage of saving $= \frac{30}{100} \times 100 = 30\%$

Question 5.

A girl gets 65 marks out of 80. What percent marks did she get?

Solution:

Total marks = 80

Marks obtained = 65

$$\text{Percentage} = \frac{65}{80} \times 100$$

$$= \frac{325}{4} = 81{\cdot}25\% \text{ or } 81\frac{1}{4}$$

Question 6.

A class contains 25 children, of which 6 are girls. What percentage of the class are the boys.

Solution:

Total number of students = 25

Number of girls = 6

Number of boys = (25 – 6) = 19

$$\therefore \text{ Percentage of boys} = \frac{19}{25} \times 100$$

$$= 19 \times 4 = 76\%$$

Question 7.

A tin contains 20 litres of petrol. Due to leakage, 3 litres of petrol is lost. What percent is still present in the tin ?

Solution:

Total petrol in tin = 20 litres

last due to leakage = 3 litres

Balance petrol in tin = (20 – 3) = 17 litres

Percentage of petrol in tin = $\frac{17}{20}$ x 100 = 85%

Question 8.

An alloy of copper and zinc contains 45% copper and the rest is zinc. Find the weight of zinc in 20 kg of the alloy.

Solution:

Total weight of alloy = 20 kg

Weight copper = 20 x 45% = 20 x $\frac{45}{100}$ = 9 kg

Weight of zinc = (total weight of alloy - weight of copper) = 20 - 9 = 11 kg

Question 9.

A boy got 60 out of 80 in Hindi, 75 out of 100 in English and 65 out of 70 in Arithmetic. In which subject his percentage of marks the best ? Also, find his overall percentage.

Solution:

A boy gets in Hindi = 60 out of 80

$\therefore$ Percent marks $= \frac{60}{80} \times 100 = 75\%$

He gets in English 75 out of 100 = 75%

and he gets in Arithmetic, 65 out of 70

$= \frac{65}{70} \times 100 = \frac{650}{7}\% = 92\frac{6}{7}\%$

We see that he gets best marks in Arithmetic

Now total marks he gets = 60 + 75 + 65 = 200

Total marks = 80 + 100 + 70 = 250

Percent marks obtained = $\frac{200}{250}$ x 100 = 80%

Question 10.
In a camp, there were 500 soldiers. 60 more soldiers joined them. What percent of the earlier (original) number have joined the camp.
Solution:
Number of soldiers = 500
More joined them = 60
Percentage to join the earlier = $\frac{60}{500}$ x 100 = 12%

Question 11.
In a plot of ground of area 6000 sq. m, only 4500 sq. m is allowed for construction. What percent is to be left without construction ?
Solution:
Total ground area = 6000 sq. m.
Allowed for construction = 4500 sq.m.
Area left without construction = 6,000 sq. m - 4500 sq. m = 1500 sq. m
Percentage of construction left = $\frac{1500}{6000}$ x 100 = 25%

Question 12.
Mr. Sharma has a monthly salary of ₹ 8,000. If he spends ₹ 6,400 every month; find :
(i) his monthly expenditure as percent.
(ii) his monthly savings as percent.
Solution:
Monthly salary of Mr. Sharma = ₹ 8000
He spends every month = ₹ 6400
His savings = ₹ 8000 - 6400 = ₹ 1600
(i) Percent expenditure = $\frac{6400}{8000}$ x 100% = 80%
(ii) Percent savings = $\frac{1600}{8000}$ x 100% = 20%

Question 13.
The monthly salary of Rohit is ₹ 24,000. If his salary increases by 12%, find his new monthly salary
Solution:
Salary = ₹ 24000
New salary = ₹ 24000 + 12% of 24000
= ₹ 24000 + $\frac{12}{100}$ x 24000
= ₹ 24000 + 2880 = ₹ 26880
New salary = ₹ 26880

Question 14.
In a sale, the price of an article is reduced by 30%. If the original price of the article is ₹ 1,800, find :
(i) the reduction in the price of the article
(ii) reduced price of the article.

Solution:

(i) Original price of article = ₹ 1800

Reduction = 30%

Reduction in price = 30% of 1800

$= \frac{30}{100}$ x 1800 = ₹ 540

(ii) Reduced price of the article = Original price - Reduction = ₹ 1800 - ₹ 540 = ₹ 1260

Question 15.

Evaluate :

(i) 30% of 200 + 20% of 450 – 25% of 600

(ii) 10% of ₹ 450 – 12% of ₹ 500 + 8% of ₹ 500.

Solution:

(*i*) 30% 200 + 20% of 450 – 25% of 600

$$= \frac{30}{100} \times 200 + \frac{20}{100} \times 450 - \frac{25}{100} \times 600$$

$$= 30 \times 2 + 2 \times 45 - 25 \times 6$$

$$= 60 + 90 - 150$$

$$= 150 - 150 = 0$$

(*ii*) 10% of ₹ 450 – 12% of ₹ 500 + 8% of Rs. 500.

$$= \frac{10}{100} \times ₹ 450 - \frac{12}{100} \times ₹ 500 + \frac{8}{100} \times 500$$

$$= 1 \times 45 - 12 \times 5 + 8 \times 5$$

$$= 45 - 60 + 40 = 45 + 40 - 60$$

$$= 85 - 60$$

$$= 25$$