



Fig. 9.1 Expenditures of ABC Ltd. (Major categories only)

The amount spent on raw materials in 1998 = Rs 560 × 20% = Rs 112 Crore

Choice (a): R & D in 1995 = 355 × 12% = Rs. 42.6 Cr  
200% of this would be Rs. 85.2 Cr.

Choice (b): Salaries and wages in 1995 = Rs. 355 × 28% = Rs. 99.4 Cr  
103% of this would be Rs. 102.38 Cr.

Choice (c): Advertising and SP in 1995 = Rs. 355 × 14% = Rs. 49.7 Cr  
225% of this would be approximately Rs. 112 Cr

Hence the correct answer is (c).

Once you get the answer, do not waste time on other alternatives.

[**Note:** Care must be taken in attempting such questions. If you look at R&D in 1998 instead of 1995, you would have found the Choice (a) to be correct. Similarly, you should never compare percentages of one year against that of another year unless of course the total value for each year remains the same. You would have marked Choice (d) as the correct one if you had compared percentages of both years. Raw materials form 20% of total expenditure in both 1995 and 1998.]

2. The amount spent on salaries and wages in 1995 was 140% of the amount spent on
- R&D in 1995
  - Raw materials in 1995
  - Advertising/SP in 1995
  - Raw materials in 1998



### Explanation

For finding ratios from pie charts, you do not have to find the values in the case of the same year, you need to find the ratios of the percentages directly.

In 1995, 28% of the expenditure was for salaries and wages. You need to find  $x$  where 140% of  $x = 28%$  and so  $x = \frac{28 \times 100}{140} = 20\%$ . Any category which received 20%

of 1995 expenditure would be the correct answer. Hence, we find raw materials in 1995 is the correct answer. Note that even though raw materials in 1998 was also 20% of that year's expenditure, we cannot take that for the answer simply because the values are different.

The correct answer is (b).

3. The fraction of total expenditure for 1995 and 1998 spent on legal affairs was about
- 0.01
  - 0.12
  - 0.05
  - 0.5



### Explanation

In 1995, 10% of Rs 355 Cr was spent on legal affairs while in 1998, only 2% of Rs 560 Cr was spent on the same. We need to find the ratio  $[(0.1)(355) + (0.02)(560)] / (355 + 560)$ .

You will be wasting a lot of time calculating this. There has to be a short-cut. We need to actually find the weighted average of 10% and 2%. For this, we need to multiply each value by a weight and divide by the total of all weights, that is, 10% is given a weight of 355 and 2% is given a weight of 560.

**Remember:** The average or weighted average of a collection of values can *never* be:

- less than the smallest value in the group, or
- more than the largest value in the group.

In this example, the answer must be less than or equal to 10%, or more than or equal to 2%. In this case only (c)