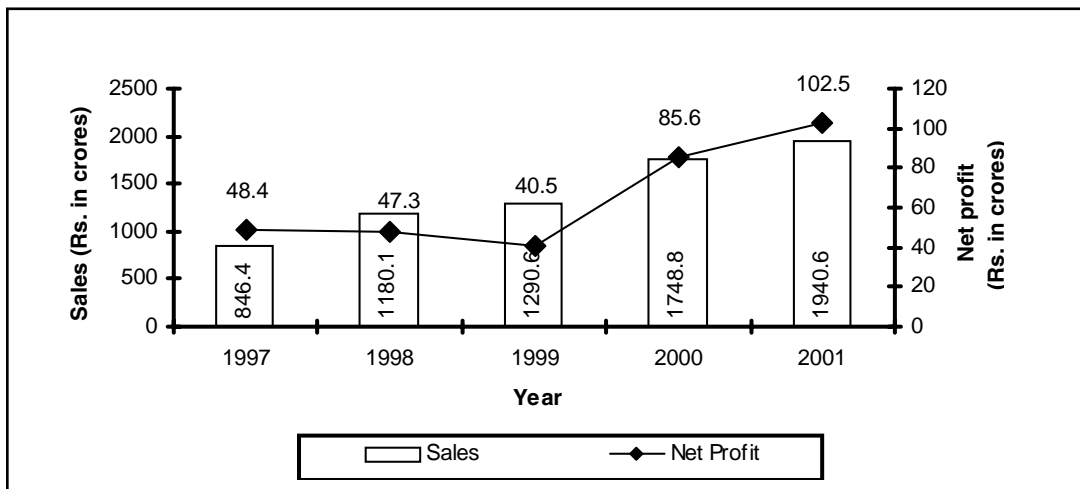


2. From the quarter ended on 31.03.2006 to the quarter ended on 31.03.2007, in which of the segments has the absolute difference between the change (in percentage terms) in *Profits* and the change (in percentage terms) in *Revenues* been the maximum?
- (a) FMCG (b) Hotels (c) Agri Business
(d) Paper & Packaging (e) None of these.
3. It is known that the *Inter-segment revenue* is contributed by Agri Business and the Paper & Packaging segments only. In the period of two consecutive twelve months, ended on 31.03.2007 and on 31.03.2006, the minimum possible individual percentage contribution of the Agri business segment to the *Net revenues* must have been more than
- (a) 10.5% (b) 7.90% (c) 1.6%
(d) 2.57% (e) None of these
4. If the segment-wise profit data of both the FMCG and the Hotels segments are interchanged between the twelve months ended on 31.03.2007 and on 31.03.2006, then what will be the contribution of the Paper and Packaging segment in the *Total Profits* for the year ended on 31.03.2007?
- (a) 8.50% (b) 10.50% (c) 6.75%
(d) 15.50% (e) 12.50%

Directions for questions 5 to 9: Answer the questions on the basis of the information given below. The sales and net profit of XPL Electronics (rupees in crores) are given below.



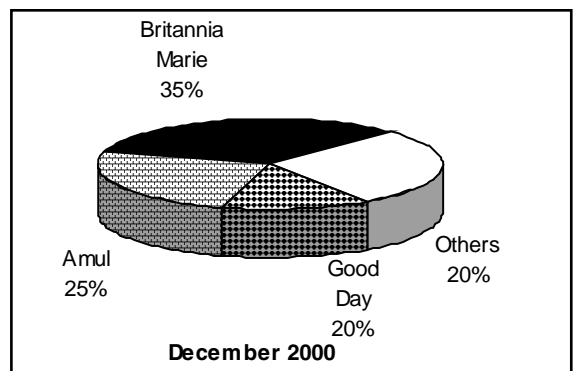
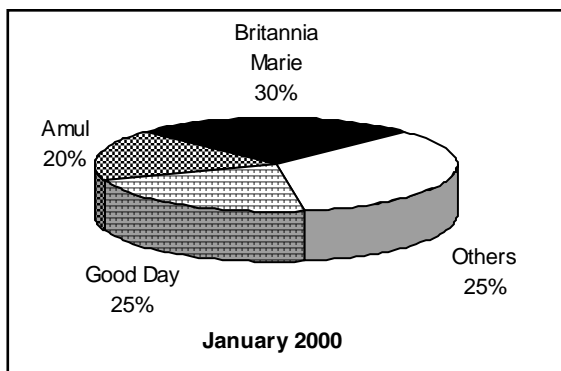
Note: Net profit = Gross profit – Tax; Gross profit = Sales – Expenses. The figures for sales are given at the bottom of the bar chart and the figures for net profit are given on top of the line chart.

5. What is the net profit as a percentage of sales of XPL Electronics in 2000?
- (a) 4.6% (b) 4.8% (c) 5.11%
(d) 6.2% (e) 6.5%
6. Which year showed the maximum possible percentage increase in sales?
- (a) 2001 (b) 2000 (c) 1999
(d) 1998 (e) Cannot be determined

7. By what percentage has the net profit dropped in 1998?
 (a) 1.18% (b) 1.86% (c) 2.53% (d) 3.45% (e) 2.27%
8. If XPL Electronics sold 20,000 units in both 2000 and 2001, then by what percentage has the price per unit changed? [Assume all the units have the same price in a year]
 (a) 8.72% (b) 10.96% (c) 9.86% (d) 12.42% (e) 14.86%
9. The year in which the expenses of XPL Electronics is the highest, is
 (a) 1999 (b) 1998 (c) 1997 (d) 2000 (e) Cannot be determined

Directions for questions 10 to 14: Answer the questions on the basis of the information given below.
 The table given below gives the total number of biscuit packets sold (in hundreds) by a shop in the months of 2000 and the pie charts give the sales of various brands of biscuits by the same shop in January and December 2000.

Month	Packets sold
January	146
February	148
March	152
April	172
May	176
June	176
July	178
August	179
September	180
October	210
November	220
December	230



10. What is the average monthly growth rate of the biscuit sales from January to December 2000?
 (a) 5.23% (b) 4.79% (c) 7.21% (d) 7.33% (e) 6.45%

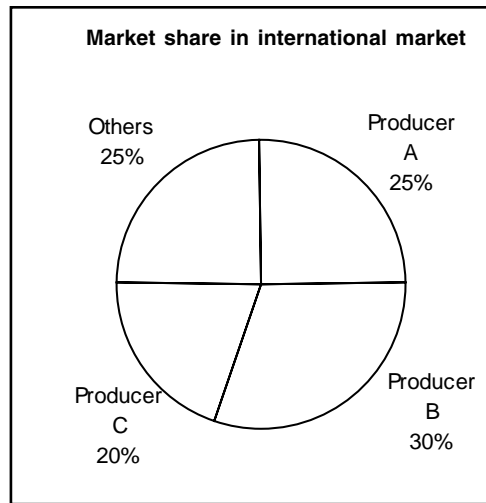
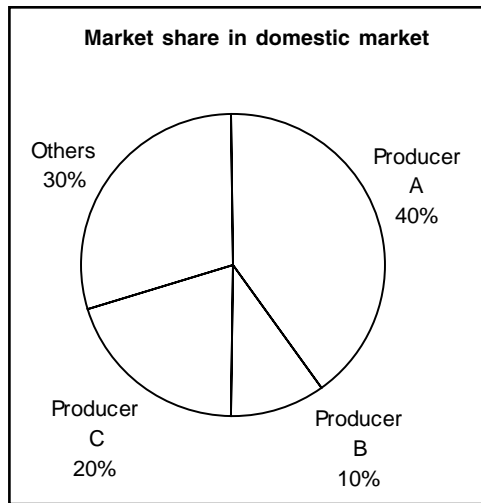
11. How many packets of Amul biscuits were sold in January 2000?
(a) 29.2 (b) 43.8 (c) 36.5
(d) 2920 (e) None of these
12. From January to December 2000, what is the approximate increase in the number of Good Day biscuit packets sold (in hundreds)?
(a) 5.5 (b) 9.5 (c) 28.3
(d) 11.8 (e) 16.4
13. Percentage increase in the sales of biscuit packets from October to December 2000 is
(a) 9.5% (b) 8.7% (c) 4.8%
(d) 4.5% (e) 8.3%
14. Which month showed the greatest percentage increase in the number of biscuit packets sold over the previous month?
(a) October (b) November (c) April
(d) December (e) July

Directions for questions 15 to 18: Answer the questions on the basis of the information given below.

Babu took voluntary retirement in December 2001 and received a certain amount of money as his retirement benefits. On January 1st, 2002, he invested the entire amount in shares. At the end of the month, he sold all his shares and earned 25% profit. On February 1st, he reinvested the entire amount in shares which he sold at the end of the month at a loss of 20%. Again he invested the entire amount on March 1st in a new company. At the end of the month, he sold the new company shares to a friend and realised a profit of 20% in the process. He invested the entire amount in shares on April 1st, which he sold at the end of the month for Rs.1,08,000 incurring a loss of 10%.

15. What was the amount received by Babu as his retirement benefits?
(a) Rs.1,08,000 (b) Rs.1,25,000 (c) Rs.1,20,000
(d) Rs.1,00,000 (e) Rs.1,40,000
16. The profit received by Babu between January 1 and April 30 in percentage terms was
(a) 8% (b) 15% (c) 10%
(d) 12% (e) None of these
17. The amount of loss incurred by Babu based on his operations in April 2002 was
(a) Rs.25,000 (b) Rs.12,000 (c) Rs.20,000
(d) Rs.8,000 (e) Rs.10,000
18. The maximum amount invested by Babu in any one month was in
(a) January (b) February
(c) March (d) April (e) None of these

Directions for questions 19 to 23: Answer the questions on the basis of the information given below. Revenues from domestic and international markets are Rs.60 million and Rs.20 million, respectively. Percentage share of various film producers is given in the pie charts for the year 2005.



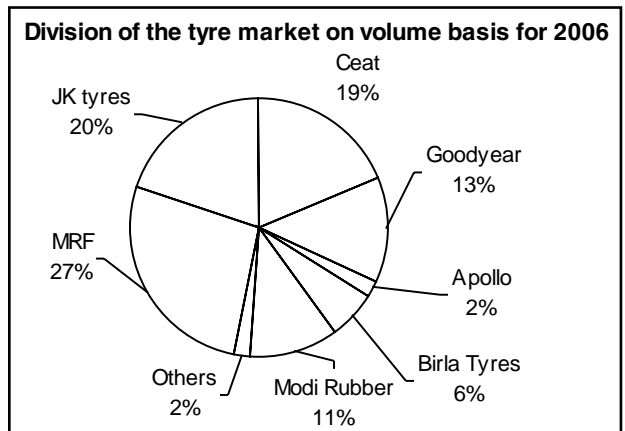
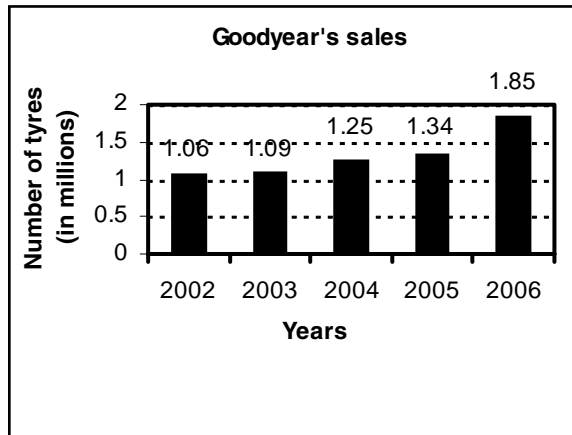
	Percentage increase in the year 2006
Revenue from domestic market	10
Revenue from International market	50
Number of domestic films	20
Number of International films	100

19. International market constitutes what fraction of A's total revenues in 2005?
 (a) $\frac{5}{8}$ (b) $\frac{3}{23}$ (c) $\frac{8}{23}$ (d) $\frac{5}{23}$ (e) $\frac{5}{29}$
20. What is the overall share of B in 2005?
 (a) 20% (b) 15% (c) 33% (d) 40% (e) 18%
21. If on an average, the revenue per film in international market is 5 times that in a domestic market in 2005, then what percentage of the market is international market on volume basis in 2005?
 (a) $6\frac{1}{4}\%$ (b) $6\frac{1}{3}\%$ (c) $6\frac{2}{3}\%$ (d) $6\frac{3}{4}\%$ (e) $6\frac{4}{5}\%$
22. What is the percentage decline in the average revenue per international film in 2006?
 (a) 15% (b) 25% (c) 50% (d) 18% (e) 28%
23. The average revenue from an international film in 2006 is what fraction of the average revenue from a domestic film in the same year?
 (a) $\frac{1}{5}$ (b) $\frac{44}{225}$ (c) $\frac{1}{3}$ (d) $\frac{1}{6}$ (e) Cannot be determined

Directions for questions 24 and 25: Answer the questions on the basis of the information given below. A machine produces pieces at the rate of 100 per hour. The cost of production is Rs.5 per unit. Each unit is sold at Rs.10. However, 10% of the production is defective and all defective items are scrapped. If production is increased by 'x' units per hour, then the cost of production per unit increases by $0.5x\%$ and $(10 + 0.8x)\%$ of the items turn out to be defective.

24. If the production is increased to 120 pieces per hour, then the profit is
 (a) 24.5% (b) 34.5% (c) 44.55% (d) 50% (e) 38.25%
25. The highest percentage increase in the production rate that keeps the profit non-negative is
 (a) 24% (b) 28% (c) 38% (d) 44% (e) None of these

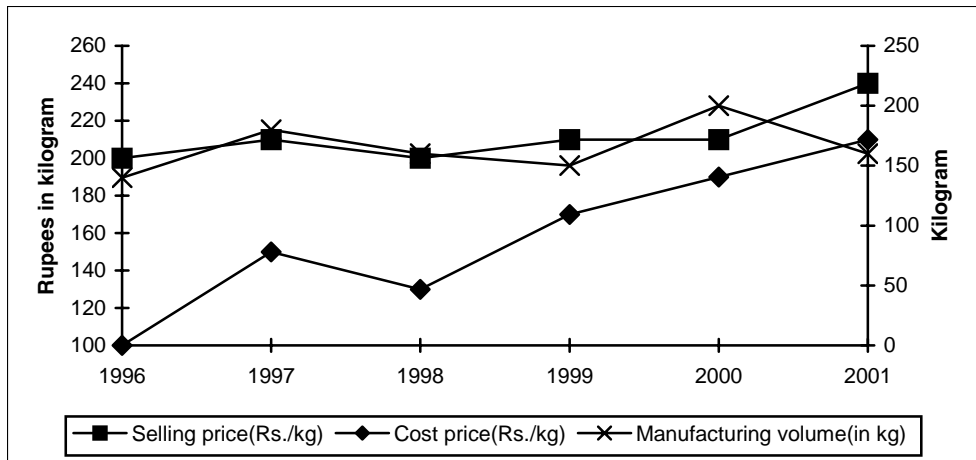
Directions for questions 26 to 30: Answer the questions on the basis of the information given below.



26. What is the size of the tyre market in 2006 (volume)?
 (a) 15.36 million (b) 18.46 million (c) 17.04 million
 (d) 18.16 million (e) 14.23 million
27. If Goodyear's share was 10.3% in 2005, what has been the growth rate of tyre market (volume) in 2005-2006?
 (a) 19% (b) 27.16% (c) 10%
 (d) 24.76% (e) 12%
28. If in the year 2007, Goodyear's market share on volume basis is expected to be 16% and the number of tyres sold by the industry are expected to reduce by 5%, then what is the expected number of tyres that would be sold by Goodyear in 2007?
 (a) 2.75 million (b) 2.52 million (c) 2.16 million
 (d) 3.08 million (e) 3.24 million
29. If the selling price of a tyre was Rs.5,000 in 2005 and Rs.5,500 in 2006, what was the percentage increase in sales (value) of Goodyear in 2005-06?
 (a) 52% (b) 29% (c) 73%
 (d) 42% (e) 36%

30. If the volume of tyre market has grown by 10% in 2001-02, what was the sales of tyres of Modi Rubber in 2001 (volume)?
- (a) 1.32 million (b) 1.62 million (c) 0.96 million
(d) 1.42 million (e) Data insufficient

Directions for questions 31 to 33: Answer the questions on the basis of the information given below. The line chart represents the selling price (rupees per kilogram), cost price (rupees per kilogram) and manufacturing volume (in kilograms) of a commodity from 1996 to 2001.



31. In which year was the maximum profit generated? [Assume that all manufactured commodity gets sold]
(a) 1996 (b) 1997 (c) 1999 (d) 2001 (e) 2000
32. In which year was the ratio of the Cost price (Rs./kg) to the Selling price (Rs./kg) minimum?
(a) 1999 (b) 1996 (c) 2000 (d) 2001 (e) None of these
33. If the growth rate of selling price for 2002 is the same as that for 2001, then what would be the selling price per kilogram in 2002?
(a) Rs.255 (b) Rs.267 (c) Rs.274 (d) Rs.306 (e) Rs.320
34. In a study of car complaints received from 60 respondents, it was observed that they faced at least one of the problems viz., engine problem, transmission problem or mileage problem. There was no one who faced exactly two of these problems. There were 30 who faced engine problems, 40 who faced transmission problems and 50 who faced mileage problems. How many of them faced exactly one type of problem out of engine, transmission and mileage problems?
(a) 10 (b) 20 (c) 30 (d) 25 (e) Cannot be determined
35. In a class of 80 students, where each student has to select at least one subject, 70 students selected mathematics, 60 student selected physics, 70 selected biology and 60 selected chemistry. All the four subjects were selected by at least how many of the students?
(a) 60 (b) 30 (c) 20 (d) 40 (e) Cannot be determined

Answers and Explanations

1	a	2	c	3	b	4	e	5	b	6	d	7	e	8	b	9	e	10	a
11	d	12	b	13	a	14	a	15	d	16	a	17	b	18	b	19	e	20	b
21	a	22	b	23	e	24	b	25	c	26	e	27	c	28	c	29	a	30	e
31	a	32	b	33	c	34	c	35	c										

1. a The segment-wise percentage increases in the Capital Employed are:

$$\text{For FMCG} = \frac{9863.54}{8792.77} = 1.12177 \\ \Rightarrow \text{an increase of } 12.18\%$$

$$\text{For Hotels} = \frac{634.89}{525.26} = 1.2087 \\ \Rightarrow \text{an increase of } 20.87\%$$

$$\text{For Agri Business} = \frac{3567.81}{2587.58} = 1.3788 \\ \Rightarrow \text{an increase of } 37.88\%$$

$$\text{For Paper and Packaging} = \frac{1683.28}{1544.31} = 1.0899 \\ \Rightarrow \text{an increase of } 8.99\%$$

So the least increase was shown in the Paper and Packaging Industry.

2. c For the given period, the segment-wise changes (in percentage terms) in the Revenues are:

Segments	Change in the Revenues
FMCG	14.27% (= 3294.04/2882.73)
Hotels	15.58% (= 304.35/263.32)
Agri Business	15.51% (= 928.73/804)
Paper and Packaging	12.17% (= 533.35/475.50)

And for the same period, the segment-wise changes (in percentage terms) in the profits are:

Segments	Change in the Profits
FMCG	16.33% (= 693.34/595.98)
Hotels	19.68% (= 117.05/97.80)
Agri Business	-0.91% (= 8.67/8.75)
Paper and Packaging	23.48% (= 97.17/78.69)

Clearly, the absolute difference is the maximum in the Agri Business Segment.

3. b For both years, if we subtract the corresponding values of the Inter Segment Revenues from the Agri Business Revenue then we will get the minimum contribution of the Agri Business segment alone in the total revenues for the corresponding year.
For the year ended on 31.03.2007:

Minimum possible Contribution of the Agri Business Segment

$$= 3691.36 - 1810.13 = 1881.23 \text{ Crores}$$

Total Revenue of the four segments = 17800.66 Crores
⇒ The minimum contribution must be more than

$$\frac{1881.23}{17800.66} = 10.57\%$$

For the year ended on 31.03.2006:

Minimum possible Contribution of the Agri Business Segment

$$= 2678.44 - 1476.30 = 1202.14 \text{ Crores}$$

Total Revenue of the four segments = 15210.96 Crores
⇒ The minimum contribution must be more than

$$\frac{1202.14}{15210.96} = 7.90\%$$

So in the period of two years, the minimum contribution by Agri Business segment alone must be more than 7.90%.

4. e The Paper & Packaging segment's new profit contribution will be:

$$\frac{416.78}{2536.97 + 258.09 + 123.55 + 416.78} = 12.50\%$$

5. b Net profit as percentage of sales in 2000

$$= \frac{85.6}{1748.8} \times 100 = 4.89\%$$

6. d By observation, it could be 1998 or 2000. Though 2000 shows a larger magnitude of change, the denominator of 2000 is high, it has to be 1998. (You can verify it by taking the ratio)

7. e Percentage drop in net profit = $\frac{48.4 - 47.3}{48.4} \times 100$
 $= \frac{1.1}{48.4} \times 100 = 2.27\%$

8. b Percentage change

$$= \frac{1940 - 1750}{1750} \times 100 = \frac{190}{1750} \times 100$$
 is slightly greater than 10%.
9. e Since percentage of tax is not known, the expenses cannot be found out.
10. a $\frac{230 - 146}{146 \times 11} \times 100 = 5.23\%$.
11. d $\frac{146 \times 20}{100} = 29.2$ hundred = 2920.
12. b $230 \times 0.20 - 146 \times 0.25 = 9.5$.
13. a $\frac{(230 - 210)}{210} \times 100 = 9.5\%$.
14. a $\frac{210 - 180}{180} \times 100 = 16.67\%$ in October.

For questions 15 to 18:

Assuming the amount of retirement benefit to be Rs. 100, the table below shows the money invested and realised at various periods.

Month	Amount invested at beginning of month (in Rs.)	Amount realised at end of month (in Rs.)
January	100	125
February	125	100
March	100	120
April	120	108

15. d If the amount realised at the end of April is Rs.108, his retirement benefit was Rs.100. If the amount realised at the end of April is Rs.1,08,000, his retirement benefit was Rs.1,00,000.
16. a The answer is $\frac{108 - 100}{100} \%$ or 8%.
 (Refer the given table)
17. b Refer the table given loss incurred is Rs.(120000 – 108000) or Rs.12,000.
18. b Answer is February, in which he invested Rs.1,25,000.
19. e A's share in international market = 25% of 20 = 5 million
 A's share in domestic market = 40% of 60 = 24 million

$$\text{International share} = \frac{5}{5 + 24} = \frac{5}{29}.$$

20. b B's share = International + Domestic
 = 30% of 20 + 10% of 60 = 6 + 6 = 12 million
 Total = 80 million = $\frac{12}{80} = 15\%$.

21. a Revenue from international market = 20 million
 Equivalent domestic revenue = $\frac{20}{5} = 4$ million

$$\text{Market share} = \frac{4}{4 + 60} = \frac{4}{64} = \frac{1}{16} = 6.25\%.$$

Alternative method:

Price \times Quantity = Sales

$$\frac{P_I}{P_D} \times \frac{Q_I}{Q_D} = \frac{S_I}{S_D} \Rightarrow \frac{5}{1} \times \frac{Q_I}{Q_D} = \frac{20}{60} \Rightarrow \frac{Q_I}{Q_D} = \frac{1}{15}$$

$$\text{Market share} = \frac{1}{16} \times 100 = 6.25\%.$$

22. b Let the number of international films = 100 in 2005.
 Number of films in 2006 = 200
 Revenue in 2005 = 20 million
 Revenue in 2006 = 30 million
 Revenue per film in: 2005 = 0.2 million
 2006 = 0.15 million
 Percentage decrease = $\frac{0.05}{0.2} = 25\%$.
23. e Absolute number of domestic or international films in 2006 is not known.
24. b Cost increase = $0.5 \times 20 = 10\% \Rightarrow \text{Cost} = 660$
 Defectives = $(10 + 16)\%$ of 120 = 31.2
 Selling price = Rs. 888 \Rightarrow Profit = 34.5%.
25. c We have to go by choices.
 Take the mid-value, say 38%.
 Cost increase = $0.5 \times 38 = 19\% \Rightarrow 138 \times 1.19 \times 5 = 821$
 Defective = $(10 + 0.8 \times 38)\% = 40.4\% = 138 \times 40.4\% = 55$
 Net items = $138 - 55 = 83$
 Selling price = $83 \times 10 = 830$.
26. e We have 13% of market (volume) = 1.85 mn
 Market (volume) 100% = $\frac{1.85}{13} \times 100 = 14.2$.

27. c Total tyre market (in 1998) volume

$$= \frac{1.34}{10.3} \times 100 = 13 \text{ million}$$

Percentage change in market volume

$$= \frac{14.2 - 13}{13} \times 100 = 10\%.$$

28. c Market in 2007 = 14.23×0.95

$$5\% = 0.7$$

So market in 2007 = 13.5 million

Now Good-year share = 16% of 13.5

$$= \frac{1}{6} \times 13.5 \approx 2.2 \text{ million.}$$

29. a $\frac{1.85 \times 5500}{1.34 \times 5000} - 1 = \frac{1.85 \times 1.1}{1.34} \approx 1.5 - 1 \approx 50\%.$

30. e We cannot determine the market share of Modi in 2001.

For questions 31 to 33: Table below has been made on the basis of graph.

Year	SP(Rs./kg)	CP(Rs./kg)	Vol. (kg)	Profit (Rs.)
1996	200	100	140	14,000
1997	210	150	180	10,800
1998	200	130	160	11,200
1999	210	170	150	6,000
2000	210	190	200	4,000
2001	240	210	160	4,800

Profit = (Selling price – Cost price) × Volume

(Table has been made to explain things, it is not necessary for you to make it.)

31. a

32. b Ratio of cost to sales = $\frac{CP}{SP}$
Lowest for 1996 = 0.5

33. c Growth rate of price in 2001 = $\frac{30}{210} \times 100$

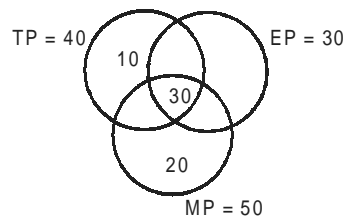
$$\left[\frac{1}{7} = 14.28\% \right] = 14.28\% = \text{Growth rate of price in 2002.}$$

Thus, price in 2002 = $240 \times 1.1428 = \text{Rs.}274.3$

34. c Given that $TP \cup EP \cup MP = 60$.

Also given that there is no one who faced exactly two of these problems.

We can conclude that $TP \cap EP \cap MP = 30$. The situation can be represented by the following venn diagram.



Only TP = 10, only MP = 20, only EP = 0.

∴ There are $10 + 20 = 30$ people who faced exactly one type of problem.

35. c Mathematics + Physics = 130. But there are only 80 students. Thus, at least 50 students took mathematics and physics.

(Mathematics and Physics) + Biology = $50 + 70 = 120$. Again since there are only 80 students, at least 40 would have taken all three mathematics, physics and biology.

Using the same logic, since $40 + 60 = 100$, there would be 20 students who have taken all four.