

# Data Interpretation

Data Interpretation is one of the easy sections of one day competitive Examinations. It is an extension of Mathematical skill and accuracy. Data interpretation is nothing but drawing conclusions and inferences from a comprehensive data presented numerically in tabular form by means of an illustration, viz. Graphs, Pie Chart etc. Thus the act of organising and interpreting data to get meaningful information is Data Interpretation.

A good grasp of basic geometric as well as arithmetic formulae is must to score high in this section. Familiarity with graphical representation of data like Venn diagrams, graphs, pie charts, histogram, polygon etc. should be thought. Once the data are grasped well, questions based on tables and graphs take little time.

In some competitive examinations data are presented in more than one table or graphs. The aim is to test not only quantitative skill but also relative, comparative and analytical ability. The crux of the matter is to find a relationship between the two tables or graphs before attempting the questions.

## Some Useful tips:

1. Data Interpretation questions are based on information given in tables and graphs. These questions test your ability to interpret the information presented and to select the appropriate data for answering a question.
2. Get a general picture of the information before reading the question. Read the given titles carefully and try to understand its nature.
3. Avoid lengthy calculations generally, data interpretation questions do not require to do extensive calculations and computations. Most questions simply require reading the data correctly and carefully and

putting them to use directly with common sense.

4. Breakdown lengthy questions into smaller parts and eliminate impossible choices.
5. Use only the information given and your knowledge of everyday facts, such as the number of hours in a day, to answer the questions based on tables and graphs.
6. Answer the questions asked and not what you think the questions should be.
7. Be careful while dealing with units.
8. To make reading easier and to avoid errors observe graphs keeping them straight.
9. Be prepared to apply basic mathematical rules, principles and formulae.
10. Since one of the major benefits of graphs and tables is that they present data in a form that enables you to readily make comparisons, use this visual attribute of graphs and tables to help you answer the questions. Where possible, use your eyes instead of your computational skills.

## Tables

Tables are often used in reports, magazines and newspaper to present a set of numerical facts. They enable the reader to make comparisons and to draw quick conclusions. It is one of the easiest and most accurate ways of presenting data. They require much closer reading than graphs of charts and hence are difficult and time consuming to interpret.

One of the main purposes of tables is to make complicated information easier to understand. The advantage of presenting data in a table is that one can see the information at a glance.

While answering questions based on

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tables, carefully read the table title and the column headings. The title of the table gives you a general idea of the type and often the purpose of the information presented. The column headings tell you the specific kind of information given in that column. Both the table title and the column headings are usually very straight forward.

### Graphs

There may be four types of graphs.

- 1) Circle Graphs:** Circle graphs are used to show how various sectors are in the whole. Circle graphs are sometimes called Pie Charts. Circle graphs usually give the percent that each sector receives. In such representation the total quantity in question is distributed over a total angle of  $360^\circ$ .  
While using circle graphs to find ratios of various sectors, don't find the amounts each sector received and then the ratio of the amounts. Find the ratio of the percents, which is much quicker.
- 2) Line Graphs:** Line graphs are used to show how a quantity changes continuously. If the line goes up, the quantity is increasing; if the line goes down, the quantity is decreasing; if the line is horizontal, the quantity is not changing.
- 3) Bar Graphs:** Given quantities can be compared by the height or length of a bar graph. A bar graph can have either vertical or horizontal bars. You can compare different quantities or the same quantity at different times. In bar graph the data is discrete. Presentation of data in this form makes evaluation of parameters comparatively very easy.
- 4) Cumulative Graphs:** You can compare several categories by a graph of the cumulative type. These are usually bar or line graphs where the height of the bar or line is divided up proportionally among different quantities.

### Solved Examples

- I. Directions (Qs. 1-5) study the following table and answer the questions given below it.

#### Production of sugar by six major production units of India in Million Tonnes

PRODUCTION UNITS						
Month	A	B	C	D	E	F
April	310	180	169	137	140	120
May	318	179	177	162	140	122
June	320	160	188	173	135	130
July	326	167	187	180	146	130
August	327	150	185	178	145	128

1. In which month the unit B has a contribution of approximately 15% in the total sugar production?  
a) August                      b) June  
c) July                         d) April
2. Which of the following units shows continuous increase in production of sugar over months?  
a) A                              b) B  
c) C                              d) D
3. In the case of Unit E, in which of the following pairs of months the production of sugar was equal?  
a) April & June              b) June & July  
c) July & August            d) April & May
4. In the month of June, how many units have a share of more than 25% of the total production of sugar?  
a) one                         b) Three  
c) Two                         d) Four
5. What was approximate percentage decrease in sugar production of unit B in June as compared to April?  
a) 8%                         b) 10%  
c) 15%                        d) 18%

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**Ans:**

1. (c) Total production in April  
 $= 310 + 180 + 169 + 137 + 140 + 120 = 1056$   
 $15\% \text{ of } 1056 = \frac{15}{100} \times 1056 = 158.4$   
 Total Production in June  
 $= 320 + 160 + 188 + 173 + 135 + 130$   
 $= 1106$   
 $15\% \text{ of } 1106 = \frac{15}{100} \times 1106 = 165.9$   
 Total production in July  
 $= 326 + 167 + 187 + 146 + 130 = 1136$   
 $15\% \text{ of } 1136 = \frac{15}{100} \times 1136 = 170.4$   
 Total Production in August  
 $= 327 + 150 + 185 + 178 + 145 + 128 = 1113$   
 $15\% \text{ of } 1113 = \frac{15}{100} \times 1113 = 166.95 \approx 167$   
 ie, in Month July, the Unit B has a contribution of approximately 15% in the total sugar production.

2. a) Unit A shows continuous increase in production of sugar over months.

3. d) In Unit E, the pair of months that shows equal sugar production is April and May.

4. a) Total Production in June =  
 $320 + 160 + 188 + 173 + 135 + 130 = 1106$

$$25\% \text{ of } 1106 = \frac{25}{100} \times 1106 = 276.5 \text{ units}$$

ie, Unit A shows more than 25% of the total production of sugar in the month June.

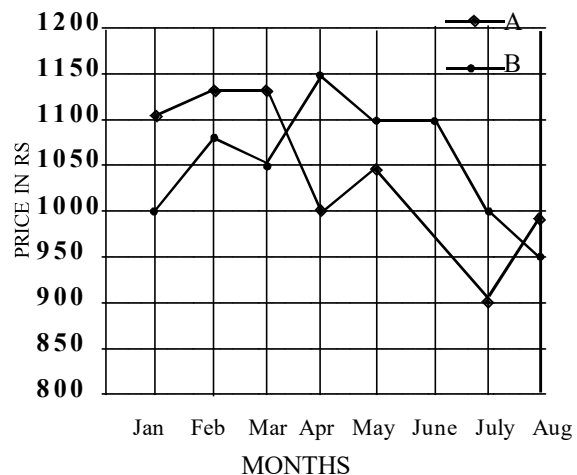
5. 6) In unit B, the production in June = 160 the production in April = 180 units

Decrease in percentage

$$= \left( \frac{180 - 160}{180} \right) 100 = \frac{20}{180} \times 100$$

$$= 11.11\% \approx 10\%$$

**II. Directions (Qs. 6-10):** Study the following graph carefully and answer the questions given below it:



6) What was the price difference between commodity A and B in the month of April?

- a) 250                      b) 150
- c) 100                      d) 90

7. What was the difference in average price between commodity A and B from April to August?

- a) 86                      b) 75
- a) 95                      d) 85

8. In which of the following pairs of months was the price of commodity A same?

- a) January - March    b) May-June
- c) April- August        d) July-August

9. What was the approximate percentage decrease in the price of commodity A from March to April?

- a) 1                      b) 9                      c) 14                      d) 12

10. What was the percentage increase in price of commodity B from January to April?

- a) 15                      b) 20                      d) 17                      d) 10

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**Ans 6 (b).** The price of commodity A in April

$$= 1000$$

The price of commodity B in April

$$= 1150$$

$$\text{Difference} = 1150 - 1000 = 150$$

7) (b). Average price of commodity A from

April to August

$$= \frac{1000 + 1050 + 975 + 900 + 1000}{5}$$

$$= \frac{4925}{5} = 985$$

Average price of commodity B from

April to August

$$= \frac{1150 + 1100 + 1100 + 1000 + 950}{5}$$

$$= \frac{5300}{5} = 1060$$

$$\text{Difference} = 1060 - 985 = 75$$

8)(c) Price of commodity A in April = 1000

Price of commodity A in August = 1000

Therefore, in April - August the price of commodity A was same.

9)(d) Price of commodity A in March = 1125

Price of commodity A in April = 1000

Decrease

$$= \left( \frac{1125 - 1000}{1125} \right) 100 = \frac{125}{1125} \times 100$$

$$= 11.11\% \approx 12\%$$

10)(a) Price of commodity B in January = 1000

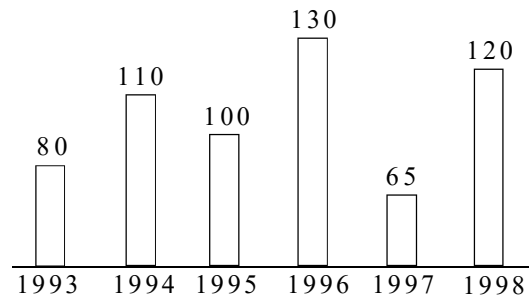
Price of commodity B in April = 1150

$$\text{Increase} = \left( \frac{1150 - 1000}{1000} \right) 100$$

$$= \frac{150 \times 100}{1000} = 15\%$$

**III Directions (11-15):** Study the following graph carefully and answer the questions given below it.

**PRODUCTION OF FOODGRAIN OVER THE YEARS (1000 TONNES)**



11) In the case of how many years was the production below the average production of the given years?

- a) one                      b) two  
c) three                    d) four

12) What was the percentage drop in production from 1996 to 1997?

- a) 100                      b) 50  
c) 65                        d) 40

13) In which year was the production 50% of the total production in 1993 and 1998 together

- a) 1994                    b) 1995  
c) 1996                    d) 1997

14. If the production in 1999 will be above the average production of the given years, which of the following could be the minimum production for 1999?

- a) 105000                b) 120000  
c) 100900                d) 130000

15. What was the approximate percentage increase in production from 1993 to 1994

- a) 60                        b) 40  
c) 110                      d) 30

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**Ans:-**

11.(c) Average production

$$= \frac{80 + 110 + 100 + 130 + 65 + 120}{6}$$

$$= \frac{605}{6}$$

= 100.833 thousand tonnes

= 100900 tonnes

ie. production in 1993, 1995 and 1997 was below the average.

12.(b) Production in 1996 = 130 thousand tonnes.

Production in 1997 = 65 thousand tonnes

$$\therefore \text{decrease} = \left( \frac{130 - 65}{130} \right) 100$$

$$= \frac{65}{130} \times 100 = 50\%$$

13.(b). Total production in 1993 and 1998

$$= 80 + 120 = 200$$

$$50\% \text{ of } 200 = \frac{50}{100} \times 200 = 100$$

ie, the production in 1995 was 50% of the total production in 1993 and 1998.

14.(c). Average production = 100900 tonnes.

Therefore the minimum production in 1999 will be 100900 tonnes

15.(b). Production in 1993 = 80 thousand tonnes.

Production in 1994 = 110 thousand tonnes

Increase

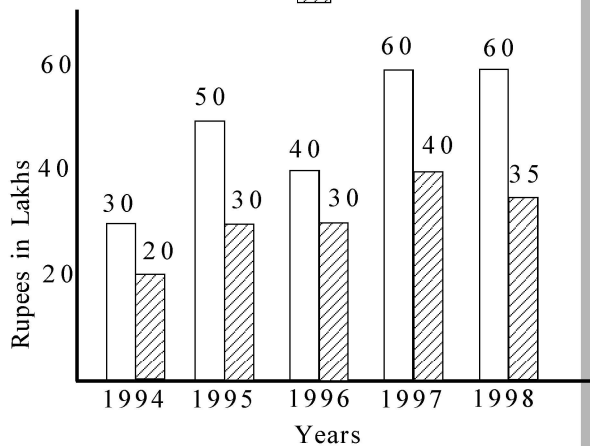
$$= \left( \frac{110 - 80}{80} \right) 100 = \frac{30}{80} \times 100 \approx 40\%$$

**IV. Directions (Qs. 16-20):-** Study the following graph carefully and answer the questions given below it:

### INCOME AND EXPENDITURE OF A COMPANY OVER THE YEARS

(In lakhs Rupees)

□ INCOME  
▨ EXPENDITURE



16. What was the difference in profit between 1995 and 1996?

- a) Rs. 10 lakhs      b) Rs. 5 lakhs  
c) Rs. 15 lakhs      d) No profit

17. In the case of how many years was the income more than the average income of the given years?

- a) one                      b) two  
c) three                    d) four

18. What was the percentage increase in expenditure from 1996 to 1997?

- a) 10                      b)  $33\frac{1}{3}$

- c)  $66\frac{2}{3}$                       d) 20

19. The income in 1996 was equal to the expenditure of which of the following years?

- a) 1994                      b) 1995  
c) 1997                      d) 1998

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20. In which of the following years was the profit the maximum?

- a) 1994                      b) 1995  
c) 1996                      d) 1998

**Ans:-**

16.(a). Profit in 1995 = 50-30=Rs. 20 lakhs

Profit in 1996 = 40-30 = Rs. 10 lakhs

Difference in profit=20-10=Rs. 10 lakhs

17.(c) Average income

$$= \frac{30 + 50 + 40 + 60 + 60}{5} = \frac{240}{5} = 48$$

Therefore in 1995, 1997 and 1998, the income is more than the average income

18.(b) Expenditure in 1996 = Rs. 30 lakh

Expenditure in 1997 = Rs. 40 lakh

Increase

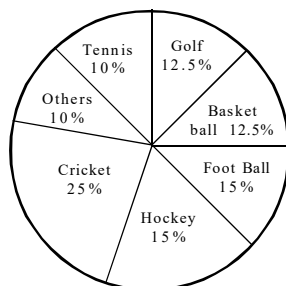
$$= \left( \frac{40 - 30}{30} \right) 100 = \frac{10}{30} \times 100 = 33 \frac{1}{3} \%$$

19.(c) The income in 1996 was equal to the expenditure in 1997 ie Rs. 40 lakhs.

20.(d) The profit is maximum in the year 1998.

**V. Directions (Qs. 21-25) The pie-chart drawn below shows the spendings of a country on various sports during a particular year. Study the pie-chart carefully and answer the questions given below it.**

**PERCENT OF MONEY SPENT ON VARIOUS SPORTS FOR ONE YEAR**



21. If the total amount spent on sports during the year was Rs. 15000000, the amount spent on cricket and hockey together was

a) Rs. 2500000      b) Rs. 3750000

c) Rs. 5000000      d) Rs. 6000000

22. Out of the following, the country spent the same amount on

- a) Hockey and Tennis  
b) Golf and foot ball  
c) Cricket and Foot ball  
d) Football and Hockey

23. Pie-chart shows that the most popular game of the country is (on the basis of money spent)

- a) Cricket                      b) Foot ball  
c) Basket ball                d) Hockey

24. The ratio of the total amount spent on football to that spent on hockey is

- a) 1:15                      b) 1:1  
c) 15:1                      d) 3:20

25. If the total amount spent on sports during the year was Rs. 12000000, how much was spent on basket ball?

- a) Rs. 950000              b) Rs. 1000000  
c) Rs. 1200000            d) Rs. 1500000

**Ans:-**

21.(d) The amount spent on Cricket and Hockey

$$= \frac{15000000 \times 40}{100} = \text{Rs. } 6000000$$

22.(d) The country spent the same amount on football and hockey

23.(a) The most popular game is cricket

24.(b) The required ratio = 15:15 = 1:1

25.(d) The amount spent on basket ball

$$= \frac{12000000 \times 12.5}{100} = \text{Rs. } 1500000$$

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### PRACTICE TEST

**Directions (Qs. 1-5)** The table below gives the production capacity (in thousands units) and the percent utilisation in respect of three products (A, B and C) over five years for an organisation. Study the table carefully and answer the questions that follow.

Year	Product						Total Capacity A+B+C
	A		B		C		
	Capacity	Utilisation	Capacity	Utilisation	Capacity	Utilisation	
1993	170	70 %	28	75 %	240	40 %	438
1994	200	63 %	35	60 %	260	40 %	495
1995	200	65 %	30	80 %	270	40 %	500
1996	210	60 %	40	50 %	260	45 %	510
1997	225	60 %	40	55 %	260	50 %	525

1. Approximately, what was the overall utilisation for all products taken together for the year 1993?

- a) 50%                      b) 55%  
c) 60%                      d) 65%

2. What is the approximate overall growth rate in respect of total capacity for the period shown?

- a) 5%                        b) 10%  
c) 15%                      d) 20%

3. In which of the following years was the production of product A the maximum for all period shown?

- a) 1993                      b) 1997  
c) 1996                      d) 1994

4. What is the average production of product B over the period shown?

- a) 21,600                    b) 24,200  
c) 34,600                    d) 28,800

5. In which of the following years was the production of product C the minimum for the period shown?

- a) 1997                      b) 1994  
c) 1993                      d) 1996

**Directions (Qs. 6-10) :** Study the following table carefully and answer the questions given below it.

### NUMBER OF STUDENTS WHO GO ABROAD FOR STUDY

State/U.T.	Year				
	1990	1991	1992	1993	1994
Maharashtra	732	840	900	920	925
Kerala	1035	940	1200	1400	1500
Karnataka	750	600	830	575	900
West Bengal	500	550	450	600	525
Delhi	1500	1625	1700	1475	1800
Andhra Pradesh	800	840	875	925	785
Total	5308	5395	5955	5895	6434

6. From which State/U.T. did the least number of students go abroad over the years among the given States / U.T.s?

- a) Karnataka  
b) Kerala  
c) West Bengal  
d) Maharashtra

7. What was the percent increase in number of students from West Bengal from 1992 to 1993?

- a) 25                                      b)  $33\frac{1}{3}$   
c) 50                                      d)  $66\frac{2}{3}$

8. In the case of which State/ U.T. was there an increase and decrease respectively in the number of students in alternate years?

- a) Andhra Pradesh  
b) Delhi  
c) Karnataka  
d) West Bengal

9. In the case of which State/U.T. was there a continuous increase in the number of students over the given years?

- a) Delhi  
b) Maharashtra  
c) Andhra Pradesh  
d) Karnataka

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10. In which year did Kerala contribute approximately one-fifth of the total number of students in that year?

- a) 1990                      b) 1991  
c) 1992                      d) 1993

**Direction (Qs. 11-15):** Study the following table carefully and answer the questions given below it.

### NUMBER OF CANDIDATES APPEARED AND QUALIFIED UNDER VARIOUS DISCIPLINES IN AN EXAMINATION OVER THE YEARS

YEAR	ARTS		SCIENCE		COMMERCE		AGRICULTURE		ENGINEERING		TOTAL	
	App.	Qual.	App.	Qual.	App.	Qual.	App.	Qual.	App.	Qual.	App.	Qual.
1992	850	200	1614	402	750	212	614	170	801	270	4629	1254
1993	1214	315	1826	420	800	220	580	150	934	350	5354	1455
1994	975	250	1970	500	860	260	624	160	742	300	5171	1470
1995	820	196	1560	450	842	300	490	160	850	312	4562	1418
1996	1412	378	2120	625	1105	320	760	200	642	301	6039	1824
1997	738	359	3506	880	1240	308	640	210	962	400	7086	2157

11. In which of the following disciplines was there a continuous increase in the number of candidates appeared over the given years?

- a) Agriculture              b) Arts  
c) Science                  d) None

12. What was the percentage drop in number of candidates qualified in Science discipline from 1994 to 1995?

- a) 10                          b) 20  
c) 25                          d) 50

13. The number of candidates appeared under Agriculture in 1995 was approximately what percentage of number of candidates qualified under Arts in 1994?

- a) 400                        b) 200  
c) 100                        d) 20

14. In which of the following years was the percentage of total number of candidates of all the disciplines together qualified to the appeared ones, the maximum?

- a) 1993                      b) 1994  
c) 1995                      d) 1996

15. In which of the following years was the

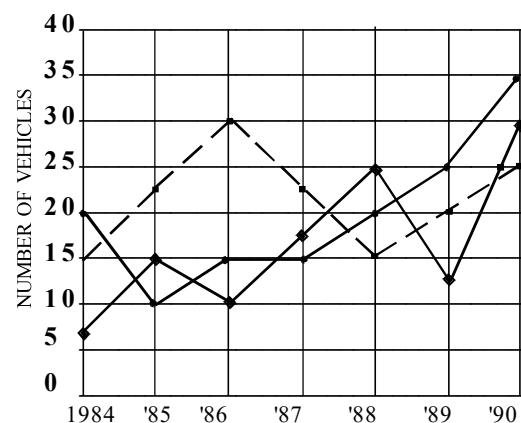
percentage of qualified to the appeared ones in engineering discipline the maximum?

- a) 1994                      b) 1995  
c) 1997                      d) 1996

**Direction (16-20) :** Study the following graph carefully and answer the questions given below:

### Production of three types of vehicles by a company over the years (in thousand)

◆ Type A      • Type B      ■ Type C





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16. What was the percentage increase in the production of C type vehicles from 1985 to 1986?

- a) 10                      b) 5  
c) 20                      d) None of these

17. The number of A type vehicles produced in 1986 was what percent of the number of C type vehicles produced in 1988?

- a)  $33\frac{1}{3}$                       b)  $66\frac{2}{3}$   
c) 50                      d) 15

18. In how many years was the production of A type vehicles less than its average production over the given years?

- a) 2                      b) 4  
c) 3                      d) 1

19. What was average number of B type vehicles produced by the company over the years?

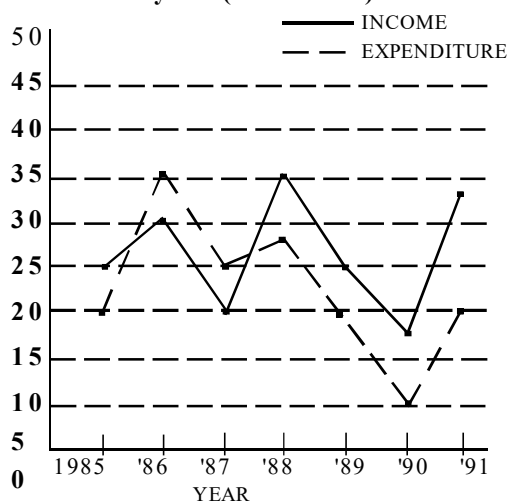
- a) 20,000                      b) 25,000  
c) 15,000                      d) 30,000

20. In which of the following years was the total production of all the three types of vehicles 60,000?

- a) 1985                      b) 1986  
c) 1987                      d) 1988

**Directions (Qs. 21 - 25) : Study the following graph carefully and answer the questions given below it.**

**Income and Expenditure of a Company over the years (Rs. in crore)**



21. In which of the following years was the difference between the income and the expenditure the maximum?

- a) 1988                      b) 1991  
c) 1986                      d) 1987

22. The income in 1987 was equal to the expenditure in which of the following years?

- a) 1985 only                      b) 1990 only  
c) 1985, 1989 and 1991  
d) 1988 and 1989

23. What was the approximate percentage drop in expenditure from 1988 to 1989?

- a) 35                      b) 25                      c) 75                      d) 40

24. What was the percentage increase in income from 1987 to 1988?

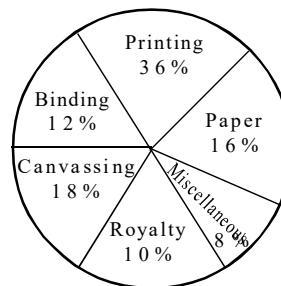
- a) 175                      b) 75                      c) 60                      d) 125

25. In how many of the given years was the expenditure more than the income?

- a) 1                      b) 3                      c) 4                      d) 2

### Directions (26-30)

**The pie chart given below shows the expenditure incurred in bringing out a book, by a publisher.**



Study the graph and answer the questions given below:

26. What is the central angle showing the cost of paper?

- a)  $16^\circ$                       b)  $32^\circ$                       c)  $28.8^\circ$                       d)  $57.6^\circ$

27. If the cost of printing is Rs. 23400, the royalty is:

- a) Rs. 6500                      b) Rs. 2340  
c) Rs. 4680                      d) Rs. 7840

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28. If miscellaneous expenditures amount to Rs. 18000, the expenditure on canvassing will be:

- a) Rs. 8000                      b) Rs. 14400  
c) Rs. 46800                    d) Rs. 40500

29. Royalty on the book is less than canvassing expenditure by:

- a) 8%                                  b) 80%  
c)  $44\frac{4}{9}\%$                               d) None

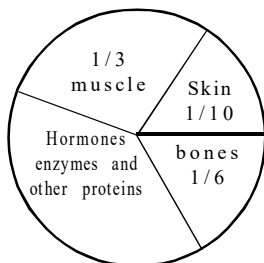
30. If 5500 copies are published and miscellaneous expenditures amount to Rs. 36960 and the marked price is 40% above cost price, then the marked price of each copy is:

- a) Rs. 122.50                      b) Rs. 117.60  
c) Rs. 126.40                      d) Rs. 92.40

### Directions (31-35)

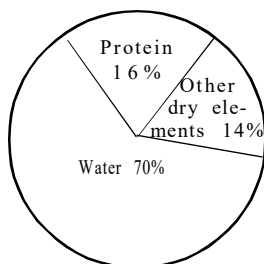
Study the following graphs carefully and answer the questions that follow:

**Distribution of proteins in human body.**



**Graph - I**

**Distribution of Elements in the human body.**



**Graph - II**

31. What is the ratio of distribution of proteins in the muscles to the distribution of proteins in bones?

teins in bones?

- a) 1:2    b) 2:1    c) 18:1    d) 1:18

32. What percent to the total weight of the human body is equivalent of the weight of the skin in the human body?

- a) 0.016    b) 1.6    c) 0.16  
d) Insufficient information

33. To show the distribution of proteins and other dry elements in the human body, the arc of the circle should subtend at the centre an angle of

- a)  $126^\circ$     b)  $54^\circ$     c)  $108^\circ$     d)  $252^\circ$

34. What will be the quantity of water in the body of a person weighing 50 kg?

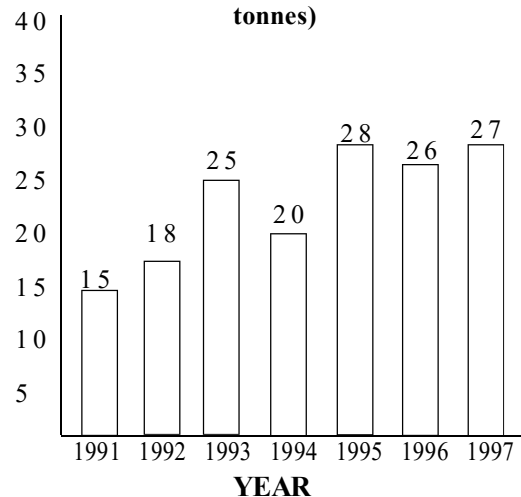
- a) 35 kg                                  b) 120 kg  
c) 71.42 kg                              d) 20 kg

35. What part of the human body is made of neither bones nor skin?

- a)  $\frac{2}{5}$     b)  $\frac{11}{15}$     c)  $\frac{1}{40}$     d)  $\frac{3}{80}$

**Directions (36-40) Study the following graph carefully and answer the questions given below**

**India's Export of rice over the years (in lakh tonnes)**



36. What was the percentage increase in export of rice from 1991 to 1992?

- a) 30    b) 20    c) 15    d) 25

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37. The total export of rice in 1994 was what percent of the total export in the year 1991 and 1993?

- a) 60    b) 50    c) 30    d) 40

38. What was the percentage drop in the export of rice in the year 1994 as compared to the year 1993?

- a) 25    b) 30    c) 35    d) 20

39. In how many years the export of rice were less than the average export in the given years?

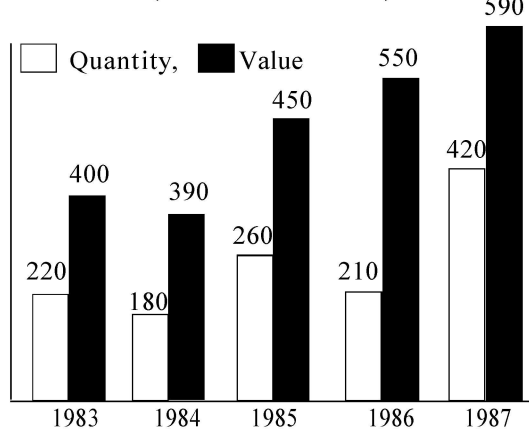
- a) 3    b) 2    c) 4    d) 5

40. In which of the following pair of years the difference in export is maximum?

- a) 1993-1997    b) 1994-1996  
c) 1991-1993    d) 1992-1994

**Directions (41-45) Study the following graph carefully and answer the questions given below it.**

**India's garment exports  
(Quantity in lakh pieces)  
(Value in Rs. Crores.)**



41. What was the percent increase in export value from 1983 to 1986?

- a) 100    b) 25.9    c) 37.5    d) 135

42. What was the difference between the pieces of garments exported in 1984 and 1985?

- a) 80,00,000    b) 8,00,000  
c) 8,00,00,000    d) None

43. What was the approximate percentage drop in export quantity from 1983 to 1984?

- a) 22    b) 18    c) 40    d) 82

44. If in 1987 the garments were exported at the same rate per piece as that in 1985, what could be the approximate value in crores of rupees of exports in 1987?

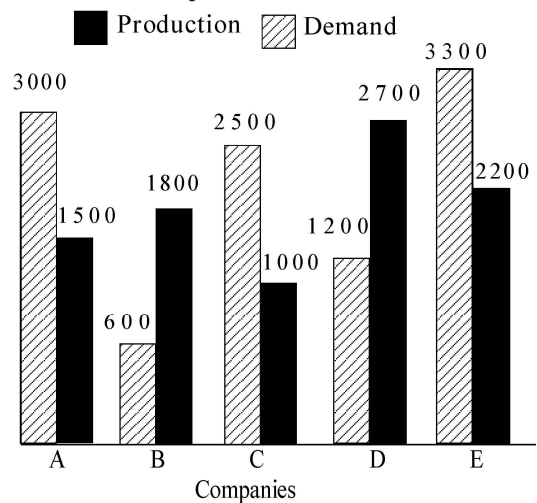
- a) 1040    b) 726  
c) 934    d) 732

45. In which of the given years the value per piece was minimum?

- a) 1987    b) 1984  
c) 1985    d) 1986

**Directions (46-50) Study the following graph carefully and answer the following questions.**

**Demand and Production of Colour T.V.s of  
Five Companies for October 1988**



46. What is the ratio of companies having more demand than production to those having more production than demand?

- a) 2:3    b) 4:1    c) 2:2    d) 3:2

47. What is the difference between average demand and average production of the five companies taken together?

- a) 1400    b) 400  
c) 280    d) 138