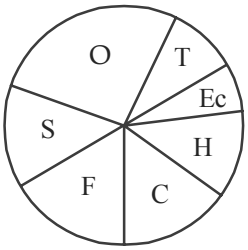
Chapter 6

Data Interpretation

1. Consider the diagram given below: *[1995]*



T : Transport
Ec : Education and children
H : Housing
C : Clothing
F : Food
S : Savings
O : Others

From the diagram shown it would be right to conclude that

(a) the family spent more than half of income on food and clothing
(b) the amount saved by the family was too little
(c) the family had no health problems
(d) the family managed to meet all the essential expenses out of the income earned

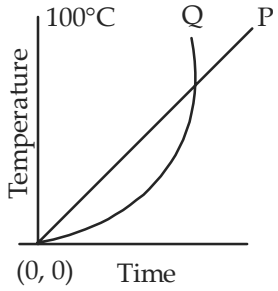
2. Consider the table given below providing details of traffic volume per hour for four locations: *[1995]*

Location	Total Traffic	% of Heavy Vehicles	Average Noise Level	Noise Pollution Level
I	377	24.40	73.50	84.00
II	380	12.50	72.60	83.00
III	377	30.00	73.50	86.50
IV	225	12.50	72.98	80.90

When the total traffic volume is the same, respectively the factor(s) which affect(s) the noise pollution level is/are

(a) percentage of heavy vehicles
(b) noise pollution level and average noise level
(c) average noise level and % of heavy vehicles
(d) indeterminable on the basis of details given

3. The variations in temperatures form 0°C to 100°C with respect to time of two liquids P, Q are shown in the graph given below: *[1995]*



Which one of the following statements is correct?

(a) During heating, liquid P remained hotter than liquid Q throughout
(b) At no point of time during heating did the two liquids have the same temperature
(c) P attained the temperature of 100°C-faster than Q
(d) Q attained the temperature of 100°C faster than P

4. The price fluctuations of 4 scrips in a stock market in the four quarters of a year are shown in the table below. Four different investors had the following portfolios of investment in the four companies throughout the year.

Portfolios

Investor 1:10 of A, 20 of B, 30 of C, and 40 of D

Investor 2 : 40 of A, 10 of B, 20 of C, and 30 of D

Investor 3 : 30 of A, 40 of B, 10 of C, and 20 of D

Investor 4 : 20 of A, 30 of B, 40 of C, and l0 of D

Stock Market Performance

	I Quarter	II Quarter	III Quarter	IV Quarter
Scirp A	Up 10%	Down 15%	UP 10%	Down 10%
Scrip B	UP 2%	UP 1%	UP 2%	UP 2%
Scrip C	UP 1%	UP 1%	Down 5%	Down 1%
Scrip D	UP 20%	Down 15%	UP 30%	Down 10%

In the light of the above which one of the following statement is correct? *[1995]*

(a) Investor 2 has made the best investment
(b) Investor 1 has made the best investment
(c) Investor 2 suffered a net loss during the year
(d) Investor 3 suffered a net loss during the year

5. The following table shows the percentage distribution of revenue expenditure of Government of India in 1989-90 and 1994-95 :

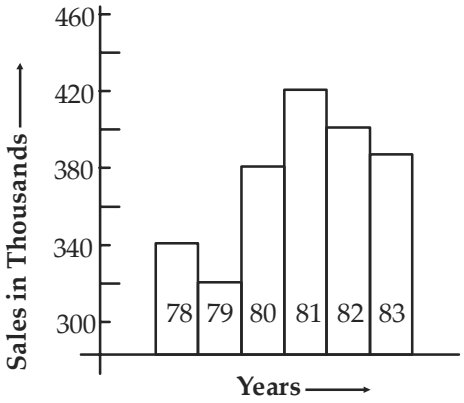
Expenditure Head (percent to total)

Years	Defence	Interest Payments	Subsidies	Grants to States/Uts	Grants to Other
1989-90	15.1	27.7	16.3	13.6	27.4
1994-95	13.6	38.7	8.0	16.7	23.0

Based on this table, it can be said that the Indian economy is in poor shape because the Central government continues to be under pressure to : *[1996]*

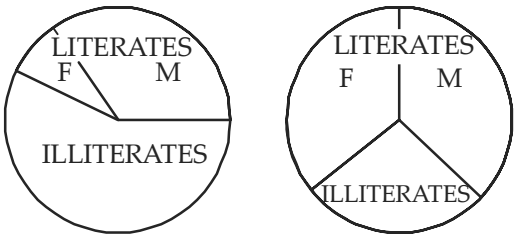
(a) reduce expenditure on defence
(b) spend more and more on interest payments
(c) reduce expenditure on subsidies
(d) spend more and more as grants-in-aid to State government/Union Territories

6. The following figure represents sales (in thousands). over the period 1978 to 1983. *[1996]*
The sales in 1981 exceeded that in 1979 by



(a) ₹ One hundred (b) ₹ Ten thousand
(c) ₹ One lakh (d) ₹ Ten lakh

7. The given pie charts show the proportion of literates and illiterates in a country, in the year 1970 and 1990,



and also the proportion of males (M) and females (F) among the literates. Which one of the following statements can be said to be true beyond any doubt? *[1996]*

(a) In 1970 half of the illiterates were women (females)
(b) The proportion of literate males to the total population of males remained the same over the years
(c) Male literacy did not improve over this period
(d) The ratio of female literates to male literates improved significantly over this period

8. The number of students in two sections, A and B having different heights is shown in the following Table. *[1997]*

Height (in metres)	Number of students in section A	in section B
1.55	3	2
1.60	7	6
1.62	12	14
1.65	15	14
1.68	8	9
1.71	6	5
1.75	3	4

The ratio of the number of students of a particular height in section A to that in section B is the maximum for the height of

(a) 1.55 m (b) 1.60 m
(c) 1.65 m (d) 1.71 m

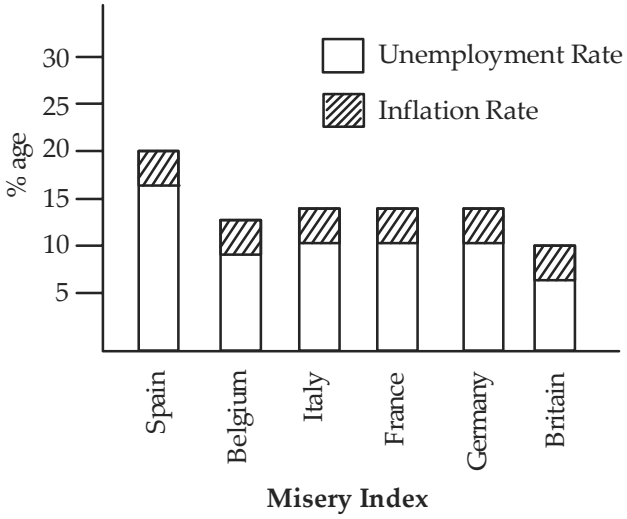
9. The following table shows the percent change in the amount of sales (in rupees) at different retail stores in a given neighbourhood market in the period 1993 to 1995 *[1997]*

Retail store	Percent change	
	1993 to 1994	1994 to 1995
Anshu	+ 10	– 10
Borna	– 20	+ 9
Calpo	+ 5	+ 12
Dilip	– 7	– 15
Elegant	+ 17	– 8

If the sales at Anshu store amounted to ₹ 8 lakh in 1993, then the amount of sales (in lakh rupees) at that store in 1995 was

(a) 7.92 (b) 8.00
(c) 8.80 (d) 9.68

10. The misery index is the sum of a country's unemployment and inflation rate. The higher the index, the more miserable is the country to live in. The figure given below is the misery index for various countries in Europe. *[1998]*



Misery Index

Which of the following conclusions can be drawn from the misery index given above?

1. Britain is the most miserable country to live In
2. The inflation rate in Spain is less than that in Belgium and Britain
3. Italy and France seem to have almost identical unemployment
4. The higher the misery index, the higher the inflation rate

Select the correct answer using the codes given below:

Codes:

(a) 1 alone (b) 2 and 3
(c) 1, 2, 3 and 4 (d) None of these

11. Production of Rice and Wheat (In 'million of Tonnes') *[1998]*

Year	Rice	Wheat	Percentage of Wheat to Rice
1950 –51	20.58	6.46	31.4
1960 –61	34.58	11.00	31.8
1970–71	42.22	23.83	56.4
1980–81	58.63	36.31	67.7
1990–91	74.29	55.14	74.2
1994–95	81.81	65.77	80.4
1995–96	79.62	62.62	78.6

The above table indicates the performance of India in rice and wheat production from 1950-51 to 1995-96. Which of the following conclusions arrived at from the above table would be valid?

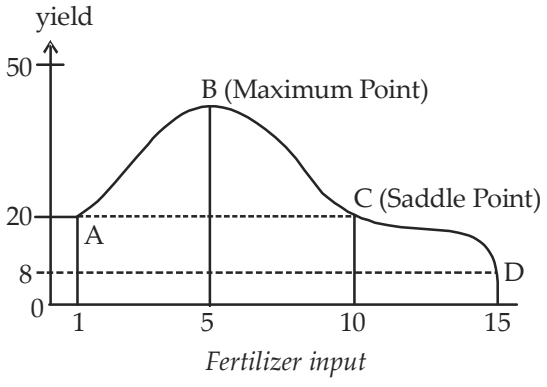
1. Record production of rice as well as wheat has been in 1994-95
2. The ratio of wheat to rice production seems to have steadily increased over 16 years
3 Wheat has not been popular among the Indian population before 1980
4. India became self-sufficient in rice and wheat only after 1990

Select the correct answer using the codes given below:

Codes:

(a) 1 and 2 (b) 1, 2, 3 and 4
(c) 3 and 4 (d) None of these

12. The yield versus fertilizer input is shown in the graph. *[1999]*



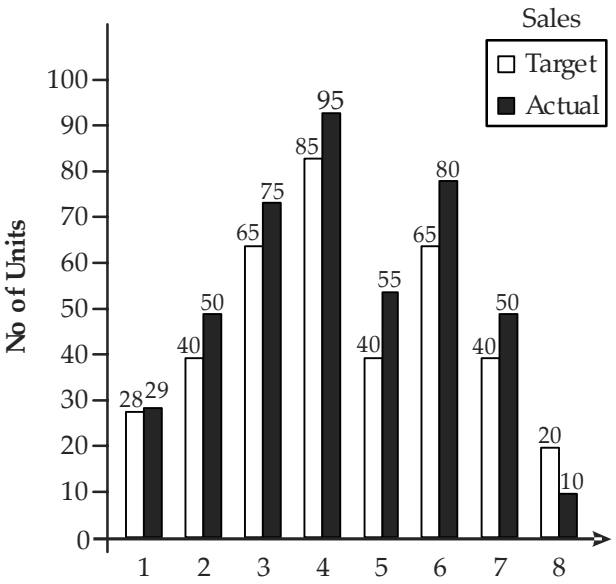
Consider the following statements based on this graph:

1. Yield rate is zero at B and C
2. There is no yield with no fertilizer input
3. The yield is minimum at D
4. The yield is neither minimum nor maximum at C

Which of the above statements are correct?

(a) 1, 2 and 4 (b) 3 and 4
(c) 2 and 3 (d) 1, 3 and 4

13. A company manufacturing air-conditioners set a monthly target. The target and realised values are shown in the bar chart. *[1999]*



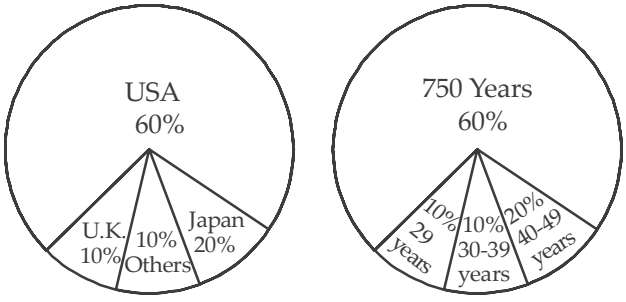
Consider the following statements based on the chart

1. The targeted sales on a monthly basis have been achieved
2. The overall target value has been exceeded by 7.5%
3. The Sales Department deserves a pat on the back

Which of the above statements is/are correct?

(a) 1 alone (b) 2 alone
(c) 1 and 2 (d) 2 and 3

14. The distribution of 1,00,000 tourists who visited India during a particular year is shown in the given charts. Based on this, the number of Japanese tourists below the age of 39 who visited India in the year concerned is *[2000]*



(a) 10,000 (b) 8,000
(c) 6,000 (d) 4,000

15. The following table shows the percentage change in the consumption of electricity by five towns *P*, *Q*, *R*, *S*, *T* from 1986 to 1988 : *[2001]*

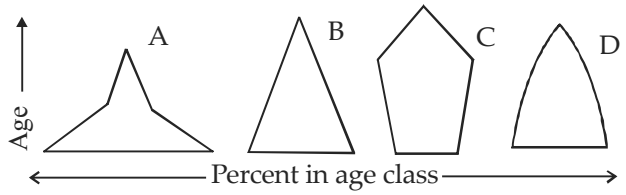
Percent change

Town	From 1986 to 1987	From 1987 to 1988
P	+ 8	– 18
Q	– 15	+ 11
R	+ 6	+ 9
S	– 7	– 5
T	+ 13	– 6

If town T consumed 500,000 units in 1986, how much did it consume in 1988?

(a) 371,000 units (b) 531, 100 units
(c) 551,100 units (d) 571, 100 units

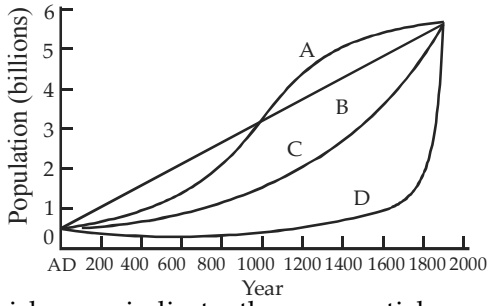
16. Consider the four age pyramids given below namely A, B, C and D representing four different countries. *[2011 - II]*



Which one of them indicates the declining population ?

(a) A (b) B (c) C (d) D

17. The following figure has four curves namely A, B, C and D. Study the figure and answer the item that follows. *[2011 - II]*



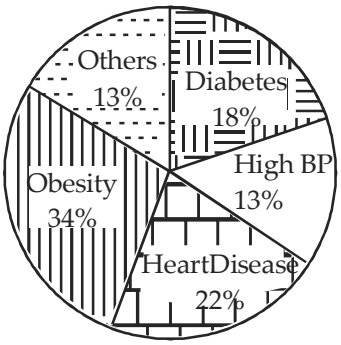
Which curve indicates the exponential growth ?

(a) A (b) B (c) C (d) D

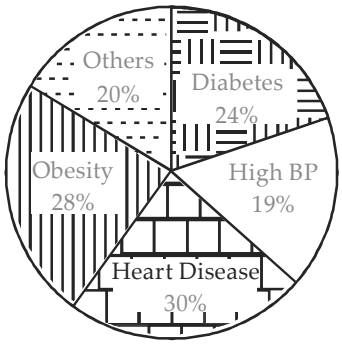
DIRECTIONS for the following 2 (two) items:

The following pie charts show the break up of disease categories recorded in the patients from two towns, Town A and Town B. Pie charts plot the disease categories as percentage of the total number of patients. Based on these answer the two items that follow the charts. *[2011 - II]*

Distribution of diseases in Town - A



Distribution of diseases in Town - B



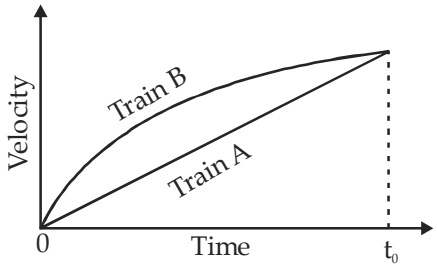
18. Which of the two towns has a higher number of persons with Diabetes ?

(a) Town A
(b) Town B
(c) Same in Town A and Town B
(d) No inference can be drawn

19. What can we say about persons with more than one disease from these graphs ?

(a) There are likely to be persons with more than one disease in Town A.
(b) There are likely to be persons with more than one disease in Town B.
(c) There are likely to be persons with more than one disease in both Towns A and B.
(d) No inference can be drawn.

20. Consider the following Velocity – Time graph. It shows two trains starting simultaneously on parallel tracks.

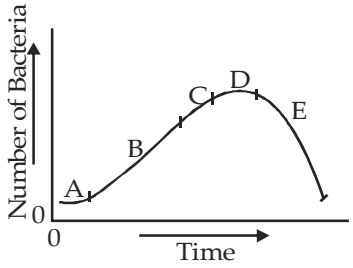


With reference to the above graph, which one of the following statements is ***not*** correct ? *[2011 - II]*

(a) Train B has an initial acceleration greater than that of Train A.
(b) Train B is faster than Train A at all times.
(c) Both trains have the same velocity at time t_0.
(d) Both trains travel the same distance in time t_0 units.

DIRECTIONS for the following 3 (three) items : *Read the passage given below, study the graph that follows and answer the three items given below the figure.*

During a party, a person was exposed to contaminated water. A few days later, he developed fever and loose motions. He suffered for some days before going to a doctor for treatment. On starting the treatment, he soon became better and recovered completely a few days later. The following graph shows different phases of the person's disease condition as regions A, B, C, D and E of the curve. *[2011 - II]*

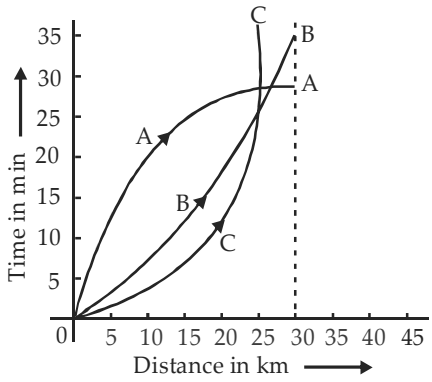


21. Which region/regions of the curve correspond/ corresponds to incubation phase of the infection?
(a) A only
(b) B only
(c) B and C
(d) No part of the curve indicates the incubation phase

22. Which region of the curve indicates that the person began showing the symptoms of infection ?
(a) A (b) B
(c) C (d) D

23. Which region of the curve indicates that the treatment yielded effective relief ?
(a) C
(b) D
(c) E
(d) The curve does not indicate the treatment

24. Consider the following distance - time graph. The graph shows three athletes A, B and C running side by side for a 30 km race.



With reference to the above graph, consider the following statements : *[2011 - II]*
1. The race was won by A.
2. B was ahead mark of A up to 25 km mark
3. C ran very slowly from the beginning.

Which of the statements given above is/are correct ?
(a) 1 only (b) 1 and 2 only
(c) 2 and 3 only (d) 1, 2 and 3

25. Consider the following information regarding the performance of a class of 1000 students in four different tests:

Tests	I	II	III	IV
Average marks	60	60	70	80
Range of marks	30 to 90	45 to 75	20 to 100	0 to 100

If a student scores 74 marks in each of the four tests, in which one of the following tests is her performance the best comparatively? *[2012 - II]*
(a) Test I (b) Test II
(c) Test III (d) Test IV

26. Consider the following diagrams: *[2013 - II]*
x men, working at constant speed, do a certain job in y days. Which one of these diagrams shows the relation between x and y?

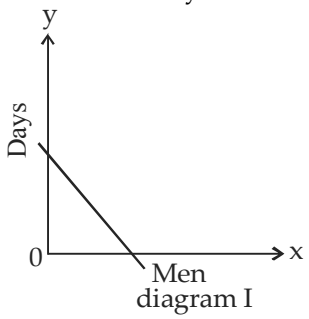


diagram I

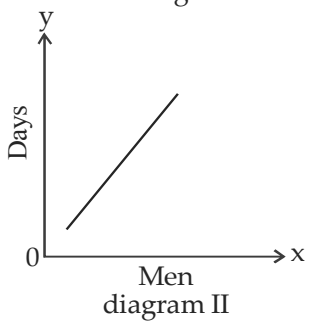


diagram II

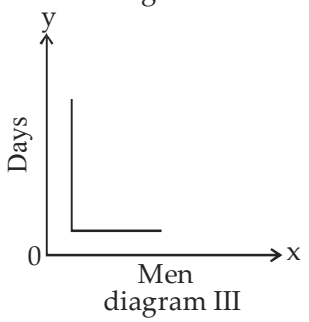


diagram III

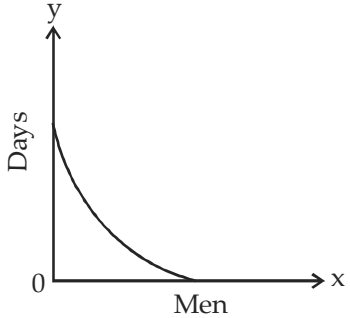


diagram IV

(a) Diagram I (b) Diagram II
(c) Diagram III (d) Diagram IV

DIRECTIONS for the follwoing 5 (five) items : *Study the two figures given below and answer the questions that follow:*

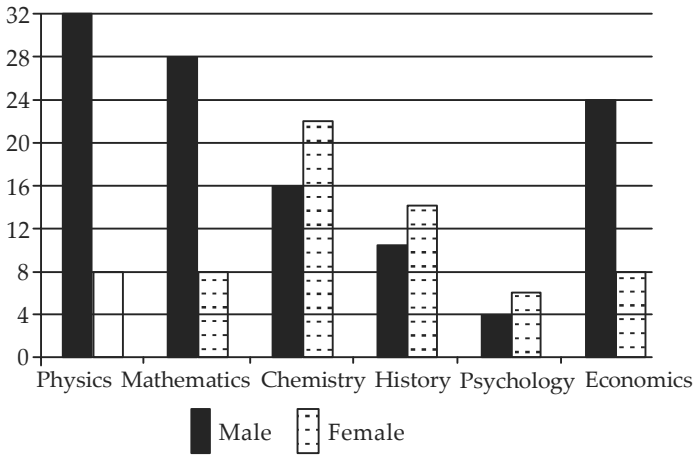


Fig 1 : Number of Professors in selected disciplines in a University by sex

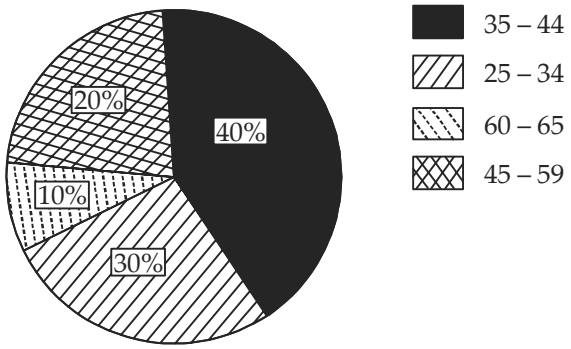


Fig. 2 : Age of Physics Professors

27. How many Physics professors belong to the age group 35 – 44? *[2013 - II]*
(a) 18 (b) 16
(c) 14 (d) 12

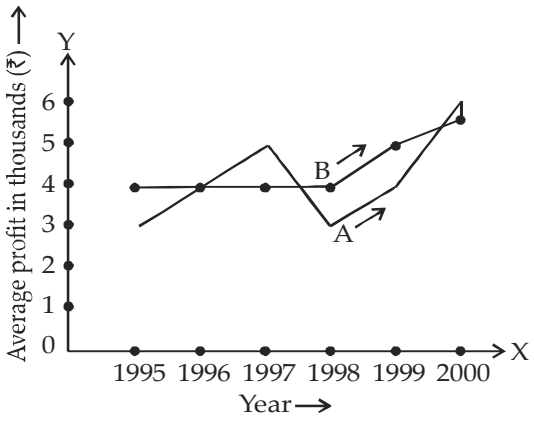
28. Which one of the following disciplines has the highest ratio of males to females? *[2013 - II]*
(a) Physics (b) Mathematics
(c) Chemistry (d) Economics

29. What percentage of all Psychology professors are females? *[2013 - II]*
(a) 40% (b) 50%
(c) 60% (d) 70%

30. If the number of female Physics professors in the age group 25 – 34 equals 25% of all the Physics professors in that age group, then what is the number of male Physics professors in the age group 25 – 34? *[2013 - II]*
(a) 9 (b) 6
(c) 3 (d) 2

31. If the Psychology professors in the University constitute 2% of all the professors in the University, then what is the number of professors in the University? *[2013 - II]*
(a) 400 (b) 500
(c) 600 (d) 700

DIRECTIONS for the following 4 (four) items : *The following graph shows the average profit of two fruit-sellers A and B in thousands (₹) per year from the year 1995 to 2000. Consider the graph and answer the 4 (four) items that follow :*



32. In which year is the average profit of A and B same ? *[2014 - II]*
(a) 1995 (b) 1996
(c) 1997 (d) 1998

33. What is the difference between the average profit of B and A in the year 1998 ? *[2014 - II]*
(a) – ₹ 100 (b) – ₹1,000
(c) + ₹ 600 (d) – ₹ 300

34. How much more average profit did A make in the year 2000 than in the year 1999 ? *[2014 - II]*
(a) ₹ 200 (b) ₹ 1,000
(c) ₹ 1,500 (d) ₹ 2,000

35. What is the trend of the average profit of B from the year 1997 to the year 2000 ? *[2014 - II]*
Consider the following matrix :
(a) Non-increasing
(b) Non-decreasing
(c) Steady
(d) Fluctuating

36. The following table shows the marks obtained by two students in different subjects : *[2014 - II]*

	Student A	Maximum Marks	Student B	Maximum Marks
English	60	100	80	150
Paychology	70	100	70	100
History	50	100	60	100
Sanskrit	30	50	15	25

The difference in the mean aggregate percentage marks of the students is
(a) 2.5 %
(b) 13.75%
(c) 1.25%
(d) Zero

37. The following table gives population and total income of a city for four years : *[2014 - II]*

Year	1992	1993	1994	1995
Population in lakhs	20	21	22	23
Income in crores (₹)	1010	1111	1225	1345

Which one of the following statements is correct inrespect of the above data ?

(a) Population increased by 5% or more every year.
(b) Income increased by 10% or more every year.
(c) Per capita income was always above ₹ 5,000.
(d) Per capita income was highest in 1994.

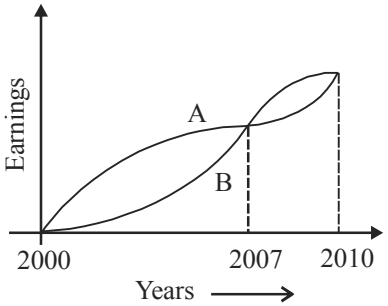
38. An automobiles owner reduced his monthly petrol consumption when the prices went up. The price-consumption relationship is as follows: *[2015 - II]*

Price (in ₹ Per litre)	40	50	60	75
Monthly consumption (in litres)	60	48	40	30

If the price goes up to ₹ 80 per litre, his expected consumption (in litres) will be

(a) 30 (b) 28
(c) 26 (d) 24

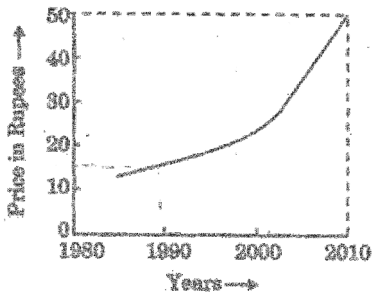
39. The graph below depicts the earnings of A and B over the period 2000 to 2010: *[2015 - II]*



From the graph, which one of the following can be concluded?

(a) On the average A earned more than B during this period.
(b) On the average B earned more than A during this period.
(c) The earnings of A and B were equal during this period.
(d) The earnings of A were less as compared to B during this period.

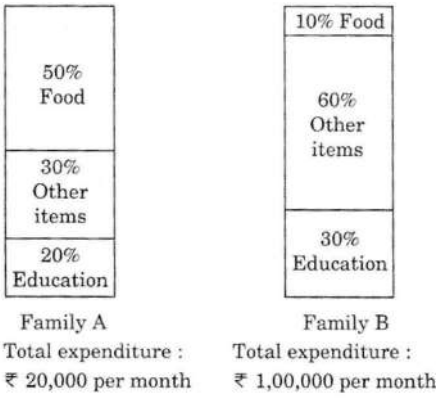
40. Year-wise variation of the price of a certain commodity is shown in the following graph: *[2015 - II]*



The price of the commodity in the year 1990

(a) must have been ₹ 10/-
(b) must have been ₹ 12/-
(c) must have been any where between ₹ 10/- and ₹ 20/-
(d) is higher than that in the year 1991

41. The proportion of expenditure on various items by two families A and B are represented in the following Bar Charts: *[2015 - II]*



From these charts, we can conclude that

(a) Family A spent more money on food than Family B.
(b) Family B spent more money on food than Family A.
(c) Family A and Family B spent the same amount on food.
(d) The expenditure on food by Family A and Family B cannot be compared.

HINTS & SOLUTIONS

1. **(d)** From the diagram, family do not spend more than half of income on food and clothing. Amount saved by the family is not too little. Health problems may come under the others category. Here, family clearly manages to meet all the expenses out of the income.

2. **(a)** For I and III, traffic volume is same. Since, Average Noise level is same for I and III and % of Heavy vehicles differs for I and III, so clearly % of Heavy vehicles affects the noise pollution level.

3. **(d)** As given in the Graph, clearly Q attains 100° C temperature faster than P.

4. **(b)**

5. **(b)** According to the data showing revenues expenditure of Indian Government, it can be said that the Indian economy is in poor shape due to it's increasing debt payments. Due to the burden of debt payments there remains little scope to utilize this money for any other purpose.

6. **(c)** Sales in year 1979 = 320, 000
Sales in year 1981 = 420,000
Thus the required difference = 420,000 – 320,000
= ₹ 100,000

7. **(d)** It can be clearly seen from the chart that the ratio of female literates to male literates has improved.

8. **(a)** Ratio of students of section A to B is maximum for 1.55 category height, it is $\frac{3}{2} = 1.5$

9. **(a)** If there are two changes of x % and y %,

then net change = $x + y + \frac{xy}{100}$

Net change= $10 - 10 + \frac{(10)(-10)}{100} = -1\%$

$\therefore$ Amount of sales in 1995 $= 8\left(1 - \frac{1}{100}\right) = 7.92$

10. **(b)** Inflation rate, *i.e.*, shaded portion in the graph is less for Spain than Belgium and Britain. From the graph, Italy and France have identical unemployment rate.

11. **(a)**

12. **(b)** From the graph, it can be seen that yield rate is not zero at B and C. With no fertilizer input, yield is 20. Yield is clearly minimum at D, i.e., 8. At C, yield is 20 and it is neither maximum nor minimum. So clearly option 3 and 4 are correct.

13. **(b)**

14. **(d)** Tourists from Japan = $\frac{20}{100}(100000) = 20000$
% below 39 years = 10 + 10 = 20%
$\therefore$ % of Tourists from Japan below 39 years
$= \frac{20}{100}(20000) = 4000$

15. **(b)** If there are two percentage changes of x% and y%, then net % change = $x + y + \frac{xy}{100}$
Net % change for T from 1986 to 1988,
$13 - 6 - \frac{(13)(6)}{100} = 6.22$
$\therefore$ Consumption of electricity by T in 1988
$= 500000\left(1 + \frac{6.22}{100}\right) = 531100$

16. **(c)** Declining population means greater number of death rate i.e. narrower upper part and lower number of birth rate i.e. narrower base. These conditions are satisfied by 'pyramids C'.

17. **(d)** Exponential growth means increase exponentially. Only graph D shows the exponential growth of population during year 1800 - 2000.

18. **(d)** Populations of both towns A and B are not given, hence, no inference can be drawn.

19. **(b)** The sum of percentage of patients in town A is 100, hence there is no any patient with more than one disease.

20. **(d)** Distance = time × speed, here train B is faster than train A, hence Train B will cover more distance than train A.

21. **(a)** Incubation phase means the time between somebody being infected with a diseases in graph part A shows that phase.

22. **(b)** Region B clearly shows the symptoms of infection.

23. **(c)** Though relief began from region C but only region E indicates effective relief.

24. **(b)** Since x axis shows the distance and y axis shows the time, hence lower graph will show faster athlete and higher graph will show slower athlete. Height of A's graph is the lowest, hence, the race was won by A. Height of B's graph is lower than A's graph up to 25 km, hence B was running faster than A up to 25 km. The height of C's graph is the lowest from the beginning, hence he run very fastly from the beginning, Hence statement 3 is not correct.

25. (b)

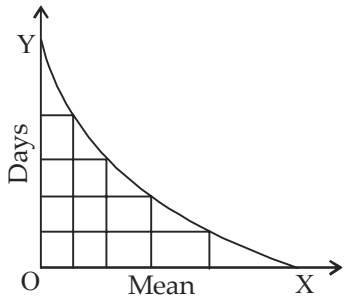
Tests	I	II	III	IV
Average marks	60	60	70	80
Range of marks	30 to 90	45 to 75	20 to 100	0 to 100

$90 - 30 = 75, \boxed{75 - 45 = 30} 100 - 20 = 80\ 110 - 0 = 110$

If a student scores 74 marks in each of the four tests, his performance would be the best comparatively in test II because there would be less numbers of the students in this range in test II only.

26. (d) Time taken to finish a work is inversely proportional to the number of persons working at it.

$\therefore$ More persons then less is the time taken to finish a job. Hence, diagram IV represents the relation between x and y.



27. (b) Number of professors in physics = 40

Percentage of professors in age group 35 – 44 = 40%

$\therefore$ Physics professors belong to age group

35 – 44 = 40% of 40

= 16

28. (a) By looking to graph I. We can deduce that physics discipline has the highest ratio of males to females.

29. (c) No. of females psychology professor = 6

No. of males psychology professor = 4

$$\text{Required percentage} = \frac{\text{No. of females}}{\text{Males + Females}} \times 100$$

$$= \frac{6}{10} \times 100 = 60\%$$

30. (a) Number of all physics professors in age group

$$25 - 34 = 30\% \text{ of } 40 = \frac{30}{100} \times 40 = 12$$

Number of female physics professors in the age group

$$25 - 34 = 25\% \text{ of } 12 = \frac{25}{100} \times 12 = 3$$

$\therefore$ Number of male physics professors in the age group

25 – 34 = 12 – 3 = 9

31. (b) Let the number of professors in the university = x

According to question

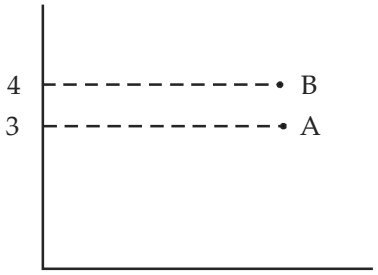
2% of x = 10

$$\Rightarrow x = \frac{10 \times 100}{2} = 500$$

32. (b) From the given options, in 1996, the graphs of A & B intersect, which shows, same average profit.

$\therefore$ Ans - 1996

33. (c) From the graph, we observe that the difference between points A & B is more than half of 1000, but less than 1000.



$\therefore$ 500 < |Difference between A and B| < 1000.

From the option, + 600 satisfies this condition.

34. (d) In 2000, Profit of A = 6000

In 1999, profit of A = 4000

$\therefore$ Difference = ₹ 2000

35. (d) Fluctuating

36. (d) For A Agg marks = 60 + 70 + 50 + 30 = 210

Agg max marks = 100 + 100 + 100 + 50 = 350

$$\%\text{ Agg marks of A} = \frac{210}{350} \times 100 = 60\%$$

For B:

Agg marks = 80 + 70 + 60 + 15 = 225

Agg max marks = 150 + 100 + 100 + 25 = 375

$$\%\text{ Agg marks of B} = \frac{225}{375} \times 100 = 60\%$$

Difference in agg percentage = 0

Note: Difference in agg percentage is same as difference in mean agg percentage.

37. (c) Rule out options:-

Option (a): - We clearly see that from 1993 to 94, increase in pop is less than 5% $\left(\frac{1}{21} \times 100 < 5\right)$

Option (b): - from year 1994 to 1995

$$\text{Increase in income} = \frac{1345 - 1225}{1225} \times 100$$

$$= \frac{120}{49} \times 4 = \frac{480}{49} < 10$$

$\therefore$ Not true

Option (c): per capita income (p.c.i.)

$$= \frac{\text{Total Income in an year}}{\text{Total population in that year.}}$$

$$\text{In 1992} \rightarrow \text{p.c.i} = \frac{101000}{20} = 5050 > 5000$$

$$\text{In 1993} \rightarrow \text{p.c.i} = \frac{111100}{21} > 5000$$

$$\text{In 1994} \rightarrow \text{p.c.i} = \frac{122500}{22} > 5000$$

$$\text{In 1995} \rightarrow \text{p.c.i} = \frac{134500}{23} > 5000$$

Option (c) is correct.

38. (a) The product of price (in ₹/litre) and the monthly consumption (in litres) in constraint is equal to 2400.

Expected consumption when the price goes up to

₹ 80 per litre $= \frac{2400}{80} = 30$ litres

39. (a) From given years 2000 to 2007

Earnings of A > Earnings of B

So,

Average of A > Average of B

Hence, It can be conducted that the average A earned more than B during this period.

40. (c) From the graph commodity price are between ₹ 10 and ₹ 20.

41. (c) A spent on food $= 20,000 \times \frac{50}{100}$

$= ₹10000$

B spent on food $= 1,00,000 \times \frac{10}{100}$

$= ₹100, 00$

So, Both A and B spent same amount on the food.

■ ◆ ■