CHAPTER
21

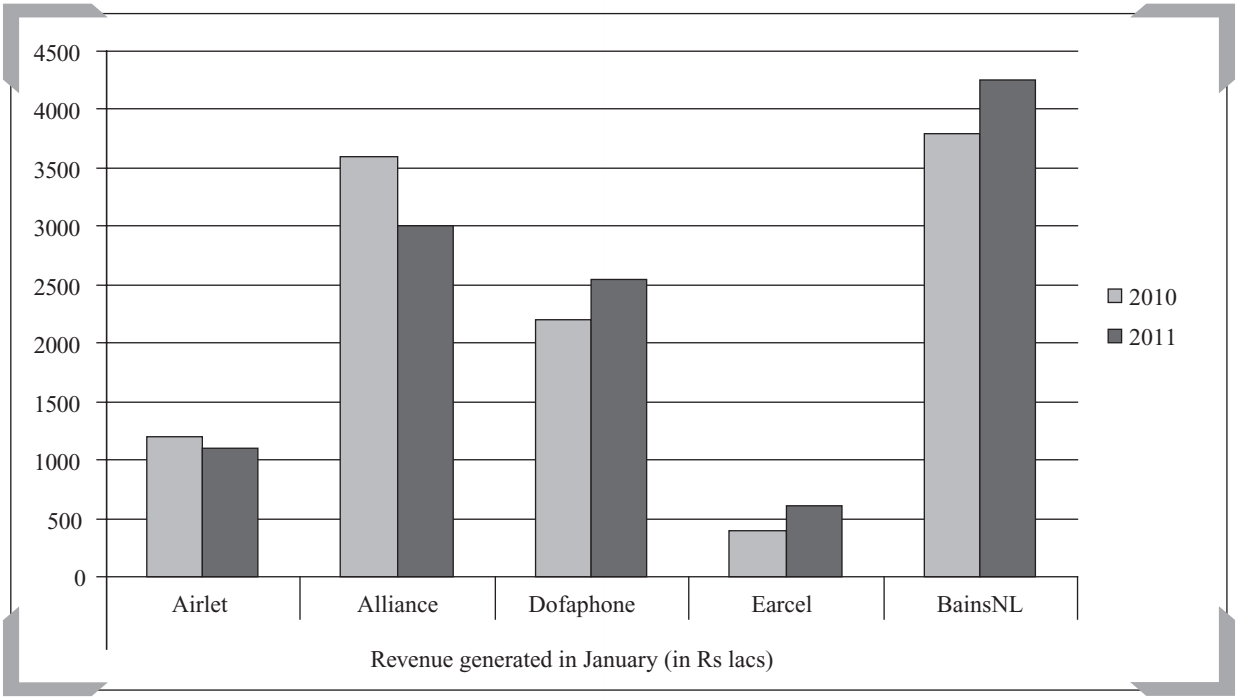
Moderate Exercises

PRACTICE EXERCISES

Exercise 1

Directions for questions 1 to 4: ***Go through the data set given below and solve the questions based on it.***

Following chart gives the revenue of 5 telecom companies generated in Jan'2010 and Jan'2011. All the values are in the multiples of 50.



Following table provides the number of users of these telecom companies for the same two years in the month of January (in lacs):

	Number of Users (in lacs)				
	AirLet	Alliance	Dofaphone	Earcel	BainsNL
2010	242	324	286	42	422
2011	259	318	294	46	440

Q.1 ARPU is defined as Average Revenue Per User. For which of the following companies ARPU in the month of January maximum for both the years combined?

(a) Alliance (b) Dofaphone
(c) Earcel (d) BainsNL

Q.2 ARPU is defined as Average Revenue Per User. For how many companies, ARPU has increased in January 2011 over January 2010?

(a) 2 (b) 3
(c) 4 (d) 5

Q.3 In January 2011, VAS (Value Added Services) was launched by all these five telecom companies for the first time. Following table gives the percentage of revenue generated through VAS by these companies in the month of January 2011 (out of total revenue generated in January 2011 as given in the bar chart):

AirLet	Alliance	Dofaphone	Earcel	BainsNL
18%	9%	12%	22%	6%

Which of the following is NOT correct for the VAS revenue generated by these companies for the year 2011?

(a) VAS revenue of Alliance is more than the VAS revenue of BainsNL.
(b) VAS revenue of AirLet is more than the VAS revenue of Alliance.
(c) If we arrange VAS revenue of all these companies in ascending order, then VAS revenue of BainsNL will be the median.
(d) Cannot be determined

Q.4 In January 2010, SMS Services was launched by all these five telecom companies for the first time. Following table gives the percentage of revenue generated through SMS services by these companies in the month of January 2010 (out of total revenue generated in January 2010 as given in the bar chart):

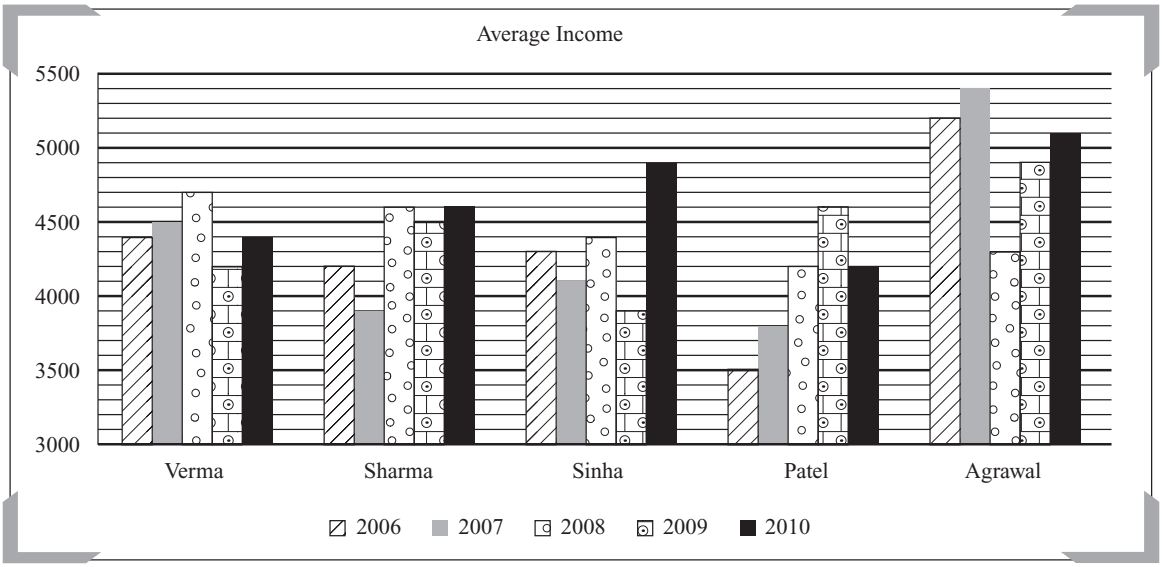
AirLet	Alliance	Dofaphone	Earcel	BainsNL
12%	16%	9%	6%	14%

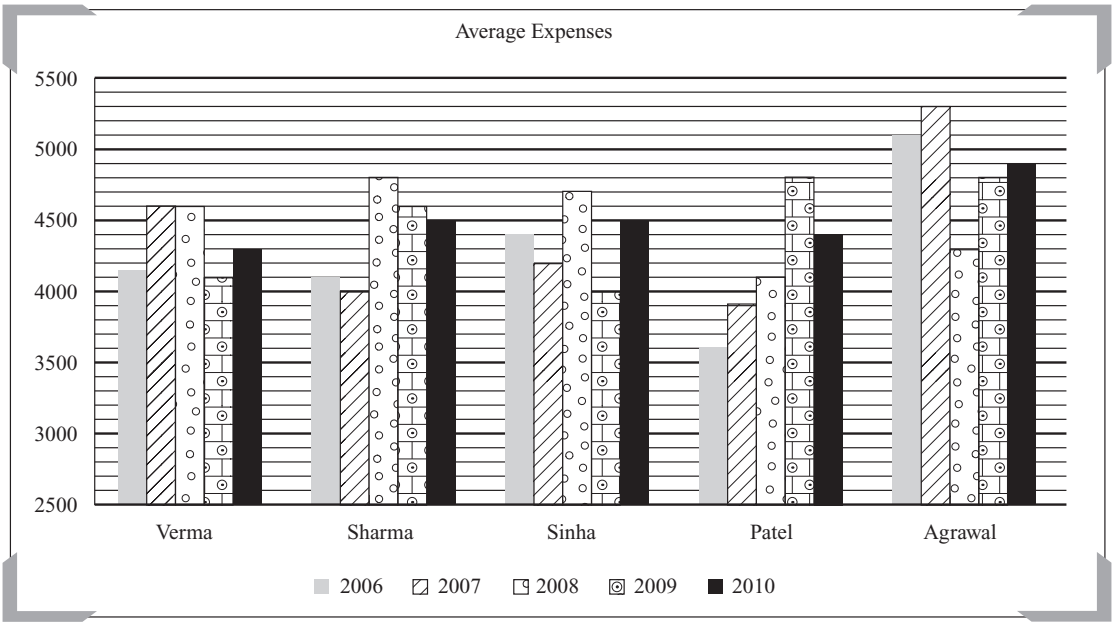
What is the ratio of revenue generated through SMS services by Alliance Telecom to the revenue generated by Earcel through SMS in 2010?

(a) 8:3
(b) 7:2
(c) 4:7
(d) cannot be determined

Directions for questions 5 to 7: ***Go through the data set given below and solve the questions based on it.***

Following bar charts give the average income and average expense for five families in the five years from 2006 to 2010. Average Savings for the year = Average Income – Average Expenses.





All the values are in the multiples of 100.

Q.5 For how many families, savings is non-negative for each of the years?
(a) 0 (b) 1
(c) 2 (d) 3

Q.6 Which of the following families' total savings is maximum over the given period?
(a) Agrawal (b) Sharma
(c) Patel (d) Verma

Q.7 For how many families, total savings is negative over the given period?
(a) 2 (b) 3
(c) 4 (d) 5

Directions for questions 8 to 10: ***Go through the data set given below and solve the questions based on it.***

Following table gives the loans disbursed (only principal value and NOT the interest) across sectors (in ₹Crore) by a bank in the period 2005–2010. There is no overlapping of loan disbursals across the given sectors. All the Loans disbursed are of only two types—Standard loan or NPA Loan.

Sectors	Standard Loan	NPA Loan
Coal	1481.41	11.27
Mining	4517.06	62.97
Iron and Steel	41972.67	836.9
Metal Products	8196.7	294.08
All Engineering	17903	475.6
Electricity	9052	34.77
Cotton Textiles	16907.7	593.27
Jute Textiles	275.7	17.57
Other Textiles	17264.1	536.9
Sugar	4718.9	26.1
Tea	375.3	102.5
Food Processing	13325.1	590.2

Standard loans are those loans for which repayments are regular and NPA Loan (Non Performing Asset Loan) are those loans for which repayment installments have stopped coming and bank have considered these loans as 'bad debt'.

Q.8 For how many sectors, NPA loan is more than 2% of the total loan?
(a) 5 (b) 6
(c) 7 (d) None of these

Q.9 For which sector, NPA loan as a percentage of total loan maximum?
(a) Jute Textiles (b) Metal products
(c) All Engineering (d) None of these

Q.10 Which of the following correctly presents the range of value of standard loan as a percentage of total loan disbursed for all the sectors taken together for the whole period?
(a) Between 96% and 97%
(b) Between 97% and 98%
(c) Between 98% and 99%
(d) None of these

Exercise 2

Directions for questions 1 to 3 ***Go through the information given below and solve the questions based on it.***

ABC is a firm that deals with furniture. Manufacturing of table requires three levels of assembly. The finished table is at first level. The leg assembly and tabletop are second level. The pieces that go into the leg assembly are at the third level which consists of short rails, long rails and legs. One unit of table requires one unit of tabletop and one unit of leg assembly. One unit of leg assembly requires 2 units of short rails, 2 units of long rails and 4 units of legs. Orders are placed just in time to minimize storage.

The lead time for activities are (Lead time is waiting time required to complete one activity)

Parts	Weeks
Assemble table	1
Finished leg assembly	1
Purchase legs	1
Purchase short rails	1
Purchase long rails	1
Purchase table top	2

The availability of parts at present:

Parts	Units
Finished Table	50
Leg assembly	100
Legs	150
Short rails	50
Long rails	0
Table top	50

Demand of finished tables:

Details	Week 4	Week 5	Week 6
Demand (units)	200	150	100

For delivering any table in subsequent weeks, demand of previous weeks must be met first. First demand occurs in week 4.

Q.1 For meeting the demand of 200 units of finished table of week 4, when would the first order of tabletops be placed?

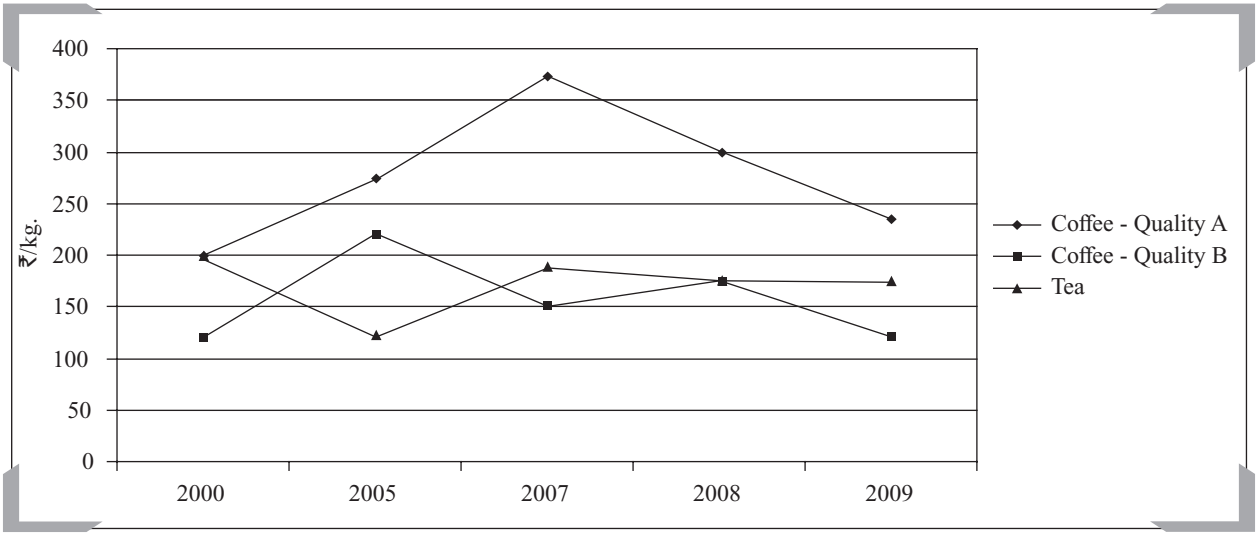
(a) Week 1 (b) Week 3
(c) Week 5 (d) None of these

Q.2 Keeping in mind the inventory, how many legs should be ordered for meeting the demand of week 4 finished tables?
(a) 200 (b) 50
(c) 400 (d) 800

Q.3. Keeping in mind the inventory, when and how many units of short rail would be placed for meeting the demand of finished table of week 6?
(a) 100 units in week 1
(b) 200 units in week 3
(c) 300 units in week 6
(d) None of these

Directions for questions 4 to 7: ***Go through the data set given below and solve the questions based on it.***

The line chart depicts the price trend of beverages (₹/kg) from 2000 to 2009.



Following table provides the price indices for agricultural commodities in the years 2000 to 2009. For the sake of calculation, base year is considered as the year 2000. In the year 2000, unit price of the items mentioned = 100.

Price indices for agricultural commodities

Item	2000	2005	2007	2008	2009
1. Beverages	100	127	158	135	104
2. Food	100	98	107	101	85
3. Raw Materials	100	113	105	84	85

Assume that the index for beverage is based on the three beverages for which the price trend is shown in the line chart given at the top.

Q.4 In 2009, what is the quantity of tea that can be bought for ₹1,000?
(a) 10.8 kg (b) 5.88 kg
(c) 11.7 kg (d) 12.8 kg

Q.5 During which period was the change in the price (₹/kg/years) the lowest for coffee quality A?
(a) 00 – 05 (b) 05 – 07
(c) 07 – 08 (d) 08 – 09

Q.6 For which of the three beverages is the change in price between 00 and 09 not in conformity with the trend for beverage price index?
I. Coffee – Quality A
II. Coffee – Quality B
III. Tea
(a) III only (b) I and II
(c) I and III (d) II and III

Q.7 Assuming that equal weightage is given to each of three beverages in calculating the index, which one contributes most to the rise in index from 2000 to 2009?
(a) Tea
(b) All contribute equally
(c) Coffee – Quality A
(d) Coffee – Quality B

Directions for questions 8 to 11: ***Go through the chart given below and solve the questions based on it.***

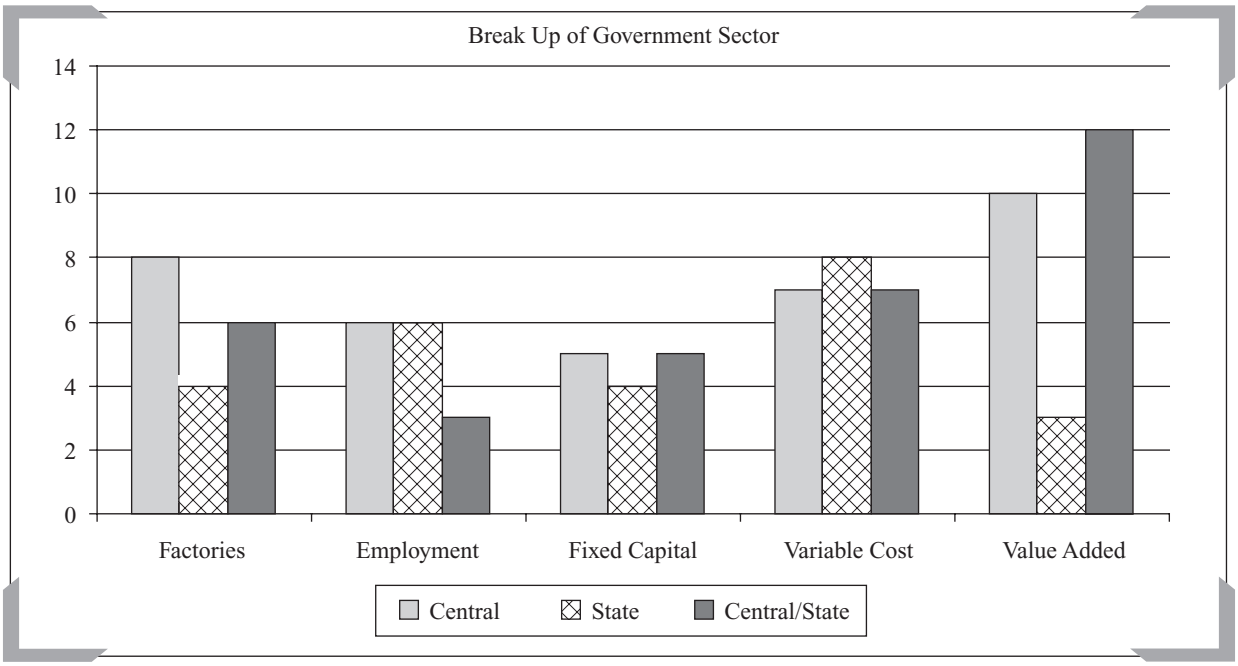
Following grid presents the percentage composition of five verticals under different sectors viz., Government, Public, Private, Joint.

Sector	Factories	Employment	Fixed Capital	Variable Cost	Value Added
Government	18	15	14	22	25
Public	12	8	6	19	8

Private	55	65	72	54	62
Joint	15	12	8	5	5
Total	100	100	100	100	100

For example, of all the factories, 18% are owned by Government.

Further, Government sector can be further broken down into three sub-sectors—Central, State, Central/State. Following bar chart gives a break-up of the government sector data (as given in Table above):



Q.8 If the total work force was 76 million whereas the total value added was ₹225 million, then which of the following had the maximum value addition per worker?
(a) Central (b) State
(c) Central/State (d) Public

Q.9 Which of the following sectors has the maximum fixed capital invested per factory?
(a) Central (b) State
(c) Central/State (d) Public

Q.10 If the variable is proportional to the number of employees and the production per employee, then for which of the following is the production highest?
(a) Government (b) Private
(c) Joint (d) Public

11. If the government has a fixed capital of $200 million in the Iron to & Steel industry, which corresponds to 20.012% of its total investment as fixed capital, then how much did the government invest (in ₹million) in Aruti Udyog Ltd. which forms 25% of the investment in the joint sector? (1US $ = ₹45)
(a) 7860 (b) 2500
(c) 143 (d) 145

Exercise 3

Directions for questions 1 to 4: ***Go through the data set given below and solve the questions based on it.***

Following table gives the percentage change in the sales revenue of five companies. Some of these data are missing and have been replaced by variable x and y.

Companies	From 2010 to 2011	From 2011 to 2012
A	20%	-15%
B	8%	12%
C	14%	-6%
D	20%	x%
E	Y%	-8%

Q.1 From 2010 to 2012, Company D's sales revenue has remained constant. What is the value of x?
(a) –20%
(b) –25%
(c) –16.66%
(d) cannot be determined

Q.2 If sales revenue of company A was ₹100 in 2010, then what is its revenue in 2012?
(a) ₹110
(b) ₹102
(c) ₹92
(d) cannot be determined

Q.3 Sales revenue of companies D and E are same in the year 2012. Which of the following between X and Y is greater?
(a) X
(b) Y
(c) X = Y
(d) cannot be determined

Q.4 Which of the companies from A or B or C has the maximum sales volume?
(a) A
(b) B
(c) C
(d) cannot be determined

Directions for questions 5 to 7: ***Go through the data set given below and solve the questions based on it.***

The table below provides certain demographic details of 30 respondents who were part of a survey investigating the irregularities in NREGS. The demographic characteristics are: gender, number of children, and age of respondents. The first number in each cell is the number of respondents in that group. The minimum and maximum age of respondents in each group is given in brackets. For example, there are five female respondents with no children and among these five; the youngest is 34 years old, while the oldest is 49.

No. of children	Male	Female	Total
0	1(38,38)	5(34,49)	6
1	1(32,32)	8(35,57)	9
2	8(21,65)	3(37,63)	11
3	2(32,33)	2(27,40)	4
Total	12	18	30

Q.5 The percentage of respondents aged less than 40 years is at least
(a) 10% (b) 16.67%
(c) 20.0% (d) 30%

Q.6 Given the information above, the percentage of respondents older than 35 can be at most
(a) 30% (b) 73.33%
(c) 76.67% (d) 90%

Q.7 The percentage of respondents that fall into the 35 to 40 years age group (both inclusive) is at least
(a) 6.67% (b) 10%
(c) 13.33% (d) 26.67%

Directions for questions 8 to 10: ***Go through the information given below and solve the questions based on it.***

Five friends meet every morning at Sree sagar restaurant for an idli-vada breakfast. Each consumes a different number of idli and vada. The number of idli consumed are 1,4,5,6 and 8, while the number of vadas consumed are 0,1,2,4 and 6. Below are some more facts about who eats what and how much:

i. The number of vadas eaten by Ignesh is three times the number of vadas consumed by the person who eats four idlis.
ii. Three persons, including the one who eats four vadas eat without chutney.
iii. Sandeep does not take any chutney.
iv. The one who eats one idli does not eat any vadas or chutney. Further, he is not Mukesh.
v. Daljits eats idli with chutney and also eats vada.
vi. Mukesh, who does not take chutney, eats half as many vadas as the person who eats twice as many idlis as he does.
vii. Bimal eats two more idlis than Ignesh, but Ignesh eats two more vadas than Bimal.

Q.8 Which of the following statement is true?
(a) Daljit eats 5 idlis
(b) Ignesh eats 8 idlis
(c) Bimal eats 1 idli
(d) Bimal eats 6 idlis.

Q.9 Which of the following statement is true?
(a) Sandeep eats 2 vadas.
(b) Mukesh eats 4 vadas.
(c) Ignesh eats 6 vadas.
(d) Bimal eats 2 vadas.

Q.10 Which of the following statements is true?
(a) Mukesh eats 8 idlis and 4 vada but not chutney
(b) The person who eats 5 idlis and 1 vada does not take chutney.
(c) The person who eats equal number of vadas and idlis also takes chutney.
(d) The person who eats 4 idlis and 2 vada also takes chutney.

Exercise 4

Directions for questions 1 to 5: ***Go through the data set given below and solve the questions based on it.***

There are two bus services available to travel from Chandigarh (CHD) to Delhi—one of Patel Roadways and the other of Rajan Roadways. The distance between the two places is 250 km. Each of these buses stops at four locations on the way from Chandigarh to Delhi. These locations are Ambala (AB), Kurukshetra (KU), Saharanpur (SH) and Panipat (PAN). The arrival and departure times of the two buses are given below in the table:

	CHD (dep)	AB (arr)	AB (dep)	KU (arr)	KU (dep)	SH (arr)	SH (dep)	PAN (arr)	PAN (dep)	Delhi (arr)
Patel roadways	09:30	10:40	10:42	11:30	11:35	12:10	12:12	13:40	13:42	14:30
Rajan roadways	14:30	15:40	15:42	16:20	16:23	17:00	17:15	18:15	18:18	19:00

NOTE: Arr stands for arrival and Dep stands for departure.

Q.1 What is the difference between the speeds of faster and slower bus (including stoppages)?
(a) 3.33 km/h (b) 5.55 km/h
(c) 6.66 km/h (d) 7.77 km/h

Q.2 Between which stretches is the ratio of the speeds of the two bus services 1:1?
(a) AB to KU
(b) CHD to AB
(c) SH to PAN
(d) cannot be determined

Q.3 What is the percentage difference between the maximum speed of Rajan roadways bus and the minimum speed of Patel roadways bus?
(a) 12%
(b) 19%
(c) 26%
(d) Cannot be determined

Q.4 In which stretches of the journey is the speed of Patel roadways bus minimum (Assume distance between the stops to be equal)?
(a) CHD to AB (b) AB to KU
(c) KU to SH (d) SH to PAN

Q.5 If the average speed is calculated keeping in mind only the running time of the bus, what would be the percentage difference in time taken by the Patel Roadways bus, if its speed is decreased by 20%?
(a) 20% (b) 25%
(c) 33.33% (d) 42.5%

Directions for questions 6 to 9: ***Answer the questions on the basis of the information given below.***

Chunmun likes six different types of fruits—Mangoes, Apples, Oranges, Peaches, Guavas and Litchis. Following table provides information about the minimum and the maximum price of each of the mentioned fruits. The table also provides information about the number of fruits of each type and the average price of each fruit.

Assume that the price of each fruit is an integer. There is only one mango that has the minimum price and there is only one mango that has the maximum price. The same holds true for each type of fruit.

	Minimum Price	Maximum Price	Average Price	Number of Fruits
Mango	20	28	23	16
Apple	40	50	46	24
Orange	4	8	7	40
Peach	16	26	20	34
Guava	3	8	5	28
Litchi	10	18	16	30

Q.6 Find the approximate average price of fruits with Chunmun.
(a) ₹18 (b) ₹20
(c) ₹23 (d) ₹15

Q.7 The number of mangoes whose price is more than ₹21 is at least
(a) 3 (b) 4
(c) 5 (d) 6

Q.8 Given that the price of four peaches with Chunmun is ₹22 each and there are exactly 10 peaches whose price is ₹18. The number of peaches with Chunmun whose price is at least ₹25 is at most
(a) 13 (b) 12
(c) 11 (d) 9

Q.9 Total number of guavas with Chunmun whose price is less than the average price of the guavas with Chunmun is at least
(a) 17 (b) 18
(c) 19 (d) 20

Q.10 A train leaves New Delhi to Mumbai. Five minutes later another train leaves Mumbai for New Delhi, with a speed double than the train that left New Delhi to Mumbai. Which train will be closer to New Delhi when they meet?
(a) Faster one
(b) Slower One
(c) Both will be at the same distance
(d) Depends upon the speed of trains and total distance between New Delhi and Mumbai

Exercise 5

Directions for questions 1 to 4: ***Go through the data set given below and solve the questions based on it.***

Following table gives the data regarding population of selected states and Union Territories (UTs)of India. Same data is given for India also.

State/Union Territory	India/States/ Union Territory #	Sex ratio (females per 1,000 males)					
		Total population		Child population (less than 7 years)		Population (7 years and above)	
		2001	2011	2001	2011	2001	2011
C1	C2	C3	C4	C5	C6	C7	C8
INDIA	INDIA	933	940	927	914	934	944
01	Jammu & Kashmir	892	883	941	859	884	887
02	Himachal Pradesh	968	974	896	906	980	983
03	Punjab	876	893	798	846	888	899
04	Chandigarh	777	818	845	867	767	812
05	Uttarakhand	962	963	908	886	973	975
06	Haryana	861	877	819	830	869	885
07	NCT of Delhi	821	866	868	866	813	866
08	Rajasthan	921	926	909	883	923	935
09	Uttar Pradesh	898	908	916	899	894	910
10	Bihar	919	916	942	933	914	912
11	Sikkim	875	889	963	944	861	883
12	Arunachal Pradesh	893	920	964	960	878	913
13	Nagaland	900	931	964	944	890	929
14	Manipur	974	987	957	934	977	995
15	Mizoram	935	975	964	971	930	976

Q.1 How many states/UTs have shown the same trend of increase or decrease as shown by India across C3 to C8?

(a) 6 (b) 7
(c) 8 (d) 9

Q.2 What percentage of total population of Bihar in 2011 are females?

(a) 51.8% (b) 47.8%
(c) 49.1% (d) 50.2%

Q.3 What percentage of total population of India in 2001 is of children less than 7 years age?

(a) 16.66%
(b) 14.28%
(c) 11.11%
(d) cannot be determined

Q.4 For how many states or union territories in 2011, percentage of children aged less than 7 years is at least 50% of the total population of the that state or union territory?

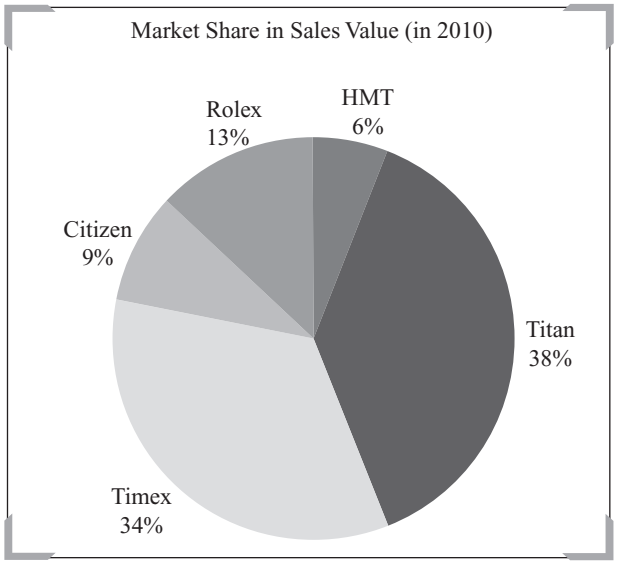
(a) 6 (b) 7
(c) 8 (d) 9

Directions for questions 5 to 8: ***Go through the data sets given below and solve the questions based on it.***

Following data sets given below present the statistics related to the Indian watch industry.

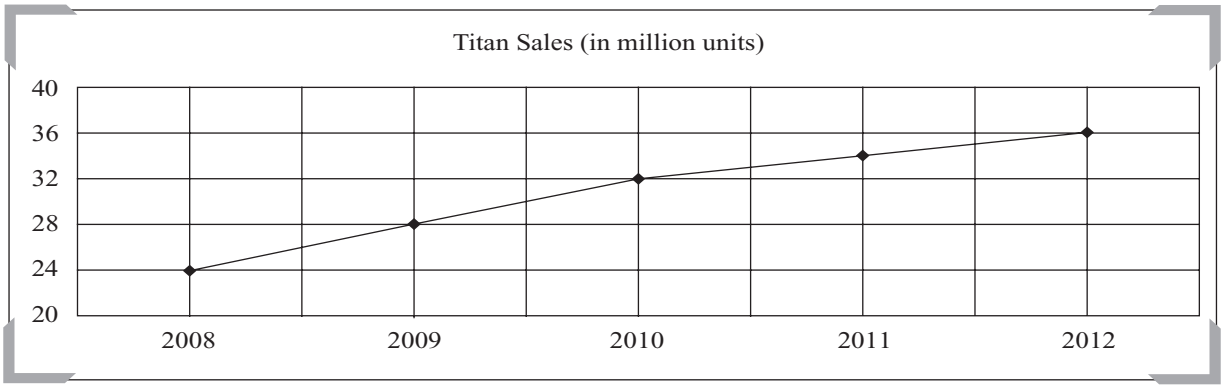
There are five companies and their respective market share of the year 2010 is given in the pie chart given below.

Chart 1:



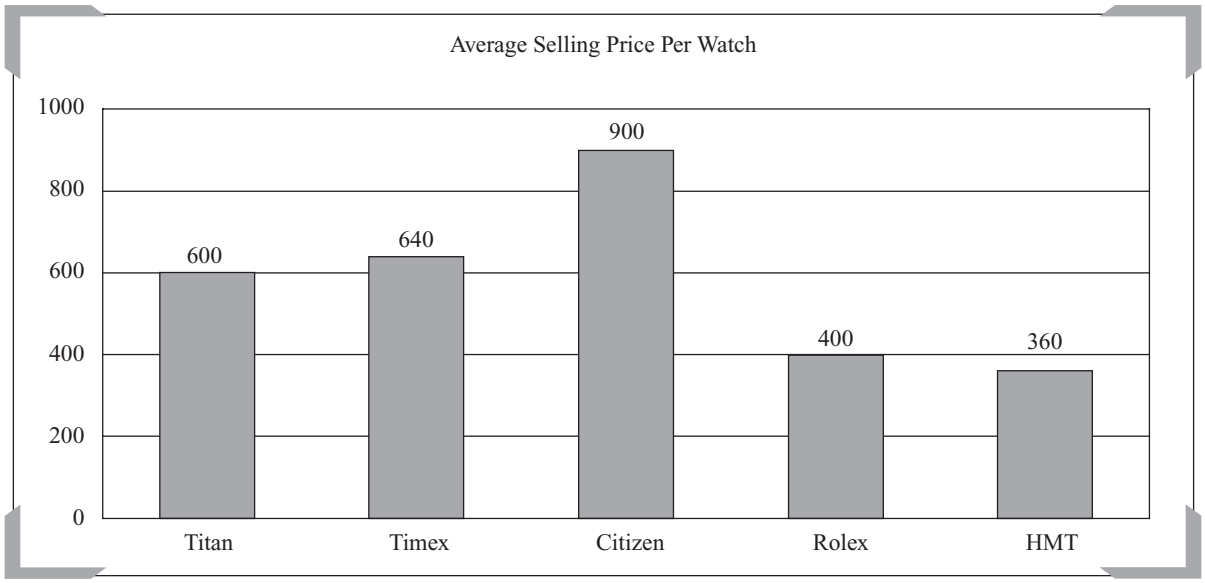
Following line chart presents the Titan Sales volume (in million units) for the years 2008 to 2012. All the values are even numbers.

Chart 2:



Following bar chart presents the average selling price (in ₹) of these companies in the year 2010:

Chart 3:



Assume there is no export or import.

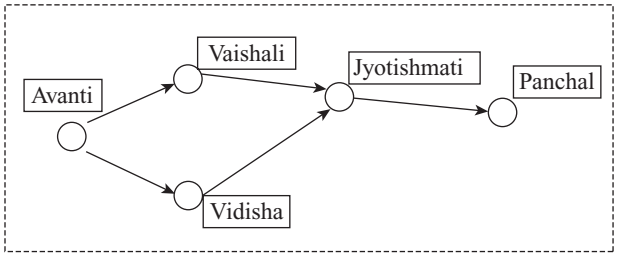
Q.5 For how many years, is it possible to calculate the size of domestic watch market (in ₹)?
(a) 0 (b) 1
(c) 2 (d) 5

Q.6 Which company has the second lowest sales (in ₹terms) in the year 2010?
(a) Citizen (b) Rolex
(c) HMT (d) Timex

Q.7 Which year saw the lowest growth rate in number of unit sold over the previous year for Titan?
(a) 2009 (b) 2010
(c) 2011 (d) 2012

Q.8 What is the size of the domestic market in the year 2010 (in ₹)?
(a) ₹757 crores
(b) ₹7578 crores
(c) ₹75789 crores
(d) Cannot be determined

Directions for questions 9 to 11: ***Read the passage given below and solve the questions based on it.***



The figure shows an oil Pipeline network among 5 cities. Each pipeline has the load carrying capacity of 1000 and each destination has a specific requirement that has to be met. The city of Vaishali and Jyotishmati have a requirement of 400 each. The requirement at Panchal is 700 where as that at Vidisha is 200. The load can be carried in the indicated directions only. It is further given that the load carried from Vaishali to Jyotishmati is 300.

Q.9 What is the free capacity in the Avanti – Vidisha pipeline?

(a) 300 (b) 200
(c) 100 (d) 0

Q.10 What is the free capacity in the Avanti – Vaishali pipeline?

(a) 0 (b) 100
(c) 200 (d) 300

Q.11 What is the quantity moved from Avanti to Vidisha?

(a) 200 (b) 800
(c) 700 (d) 1000

Exercise 6

Directions for questions 1 to 3: ***Read the passage given below and solve the questions based on it.***

In calendar year 2008, there was turbulence in the air as Jet Airways' Chairman pondered what course of action the airline should take. Air India was also struggling with the same dilemma. Two of India's largest airlines, Air India and Jet Airways, had sounded caution on their fiscal health due to mounting operational costs. A daily operational loss of $2 million (₹8.6 crore) had in fact forced Jet Airways to put its employees on alert. Jet's senior General Manager had termed the situation as grave. Jet's current losses were $2 million a day (including Jet-Lite). The current rate of Jet Airways' domestic losses was $0.5 million (₹2.15 crore) and that of JetLite was another $0.5 million. International business was losing over $1 million (₹4.30 crore) a day.

The situation was equally grave for other national carriers. Driven by mounting losses of almost ₹10 crores a day, Air India, in its merged avatar, was considering severe cost-cutting measures like slashing employee allowances, reducing in-flight catering expenses on short-haul flights and restructuring functional arms. The airline also considered other options like cutting maintenance costs by stationing officers at hubs, instead of allowing them to travel at regular intervals. Jet Airways, Air India and other domestic airlines had reasons to gel worried, as 24 airlines across the world had gone bankrupt in the year on account of rising fuel costs. In India, operating costs had gone up 30-40%. Fuel prices had doubled in the past one year to ₹70,000 per kilolitre, forcing airlines to increase fares. Consequently, passenger load had fallen to an average 55-60% per flight from previous year's peak of 70-75%. Other airlines faced a similar situation; some were even looking for buyers. Domestic carriers had lost about ₹4,000 crore in 2007-08 with Air India leading the pack. "As against 27% wage bill globally, our wage bill is 22% of total input costs. Even then we are at a loss," an Air India official said. Civil aviation ministry, however, had a different lake. "Air India engineers go to Dubai every fortnight to work for 15 days and stay in five star hotels. If they are stationed there, the airline would save ₹8 crore a year. This is just the tip of the iceberg. There are several things we can do to reduce operational inefficiency". According to analysts, Jet Airways could be looking at a combined annual loss of around ₹3,000 crore, if there were no improvement in operational efficiencies and ATF prices. Against this backdrop, the airline had asked its employees to raise the service bar and arrest falling passenger load.

Q.1 Which of the following are the reasons for Jet Airways not doing well?

1. Rising ATF prices
2. Reduced passenger load
3. Declining service quality
4. Staff travelling to Dubai

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

Q.2 The total loss for the airline industry was likely to be ₹10,000 crore. Jet Airlines lost ₹3,000 crore, Air India lost ₹"X" crore and "rest of the airlines" lost ₹"Y" crore. What was the loss for the "rest of the airlines", in 2008?

(a) Cannot be determined
(b) ₹3,350 crore
(c) ₹3,690 crore
(d) ₹3,340 crore

Q.3 Suppose fuel constitutes 30% of the revenues, do you think airlines would be in a better situation by reducing their fare?

(a) Yes
(b) Data insufficient to reach decision
(c) No
(d) It would not matter

Directions for questions 4 to 7: ***Go through the data set given below and solve the questions based on it.***

Year	Farm population, April		Farm employment (thousand)			Crops harvested (millions of kgs) acres)	Selected indexes of input use (1992=100)						
	No. (thousands)	As % of total population	Total	Self – employed unpaid workers	Hired Workers		Total	Farm labour	Farm real estate	Durable equipment	Energy	Agricultural Chemicals	Feed, seed and purchased live stock
2000	4591	1.9	2891	2000	892	322	101	102	101	105	100	95	99
2001	4632	1.9	2877	1968	910	318	102	106	100	103	101	100	99
2002	–	–	2810	1944	866	319	100	100	100	100	100	100	100
2003	–	–	2800	1942	857	308	101	96	97	97	100	105	101
2004	–	–	2767	1925	842	321	102	96	94	94	103	106	102

Q.4 The average indices of input use from 2000 to 2004 for farm labour, durable equipment and energy, in their increasing order, can be arranged as.
(a) farm labour, durable equipment, energy
(b) durable equipment, energy, farm labour
(c) durable equipment, farm labour, energy
(d) energy, durable equipment, farm labour

Q.5 If hired workers include 80% locals and 20% migrants in 2000, and 75% locals and 25% migrants in 2001, what is the percentage rise or drop in migrant hired workers from 2000 to 2001?
(a) drop 13.25% (b) rise 13.23%
(c) drop 27.5% (d) rise 27.5%

Q.6 What is the ratio of the number of hired workers to that of self-employed unpaid workers for the duration 2001 to 2003?
(a) 0.62:1 (b) 0.45:1
(c) 2.1:1 (d) 1.6:1

Q.7 Which of the following is correct?
I. In 2003, minimum area was harvested for crops but maximum agricultural chemicals were used.
II. In 2004, both the number of self-employed unpaid workers and the use of durable equipments fell by minimum.
(a) I only (b) II only
(c) I and II (d) None of these

Directions for questions 8 to 10: ***Go through the information given below and solve the questions based on it.***

Following is known about the members of Thumbs-up holidays who might have gone to Goa or Kashmir or both.

Number of children	Total number of members	Number of members who went to	
		Goa	Kashmir
Less than 3 children	150	80	60
3 to 5 children	400	275	225
More than 5 children	50	20	30

Q.8 What is the least number of members who have 3 to 5 children and have gone to at least one of the destinations?
(a) 225
(b) 275
(c) 100
(d) Cannot be determined

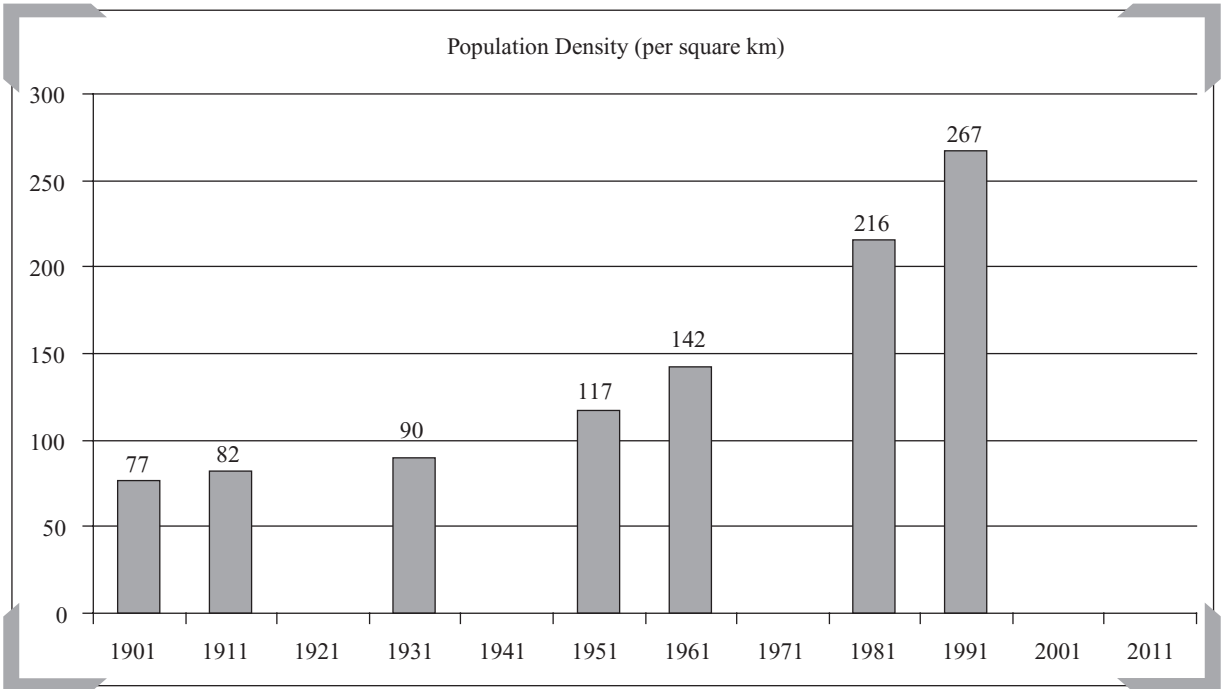
Q.9 Minimum number of members for all the categories and have gone to at least one of the destinations is.
(a) 385 (b) 375
(c) 305 (d) 315

Q.10 How many of the members have definitely not gone to any of the two destinations?
(a) 0
(b) 10
(c) 25
(d) Cannot be determined

Exercise 7

Directions for questions 1 to 4: ***Go through the data set given below and solve the questions based on it.***

Following bar chart and table provides the Census Data for India during the given period.



As it can be seen that in the bar chart, population density data for few years namely 1921, 1941, 1971, 2001 and 2011 have been omitted due to some technical fault. Assume these values to be equal to A, B, C, D and E respectively.

Following table provides the absolute increase in the density of the census year with respect to the previous census year.

Census year	Absolute increase from previous census
1901	NA
1911	5
1921	–1
1931	9
1941	13
1951	14
1961	25
1971	35
1981	39
1991	51
2001	58
2011	Not mentioned

Q.1 Which of the following is the largest one?
(a) B
(b) C
(c) D
(d) cannot be determined

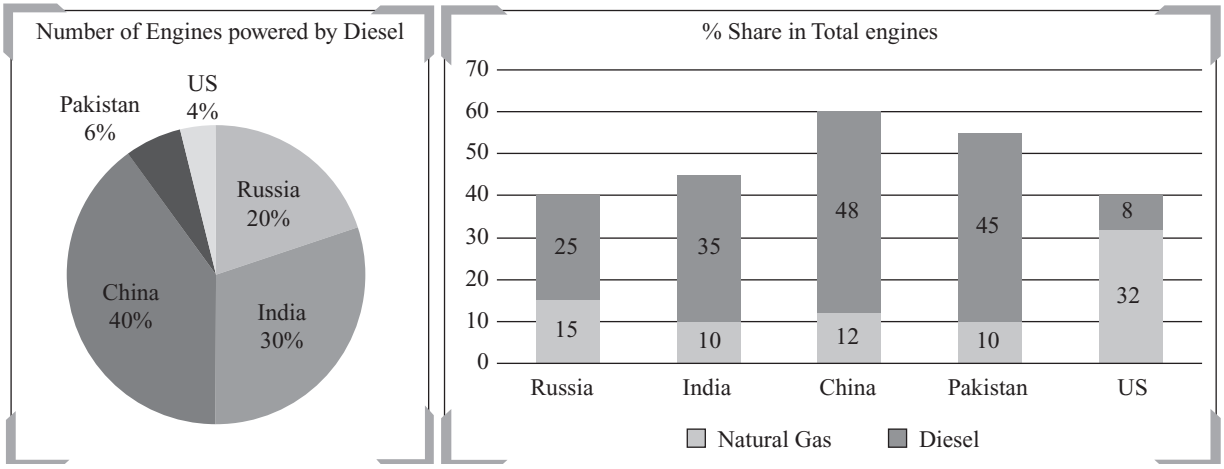
Q.2 Population density of census year 2011 increases by 17.5% over the population density of census year 2001. What is the value of E?
(a) 372 (b) 382
(c) 392 (d) 352

Q.3 Which year shows the second largest percentage increase in the population density over the previous census year?
(a) 1931 (b) 1941
(c) 1971 (d) 1991

Q.4 Population density of which year is closest to the average of population density of all the census years from 1901 to 2001?
(a) 1931 (b) 1961
(c) 1981 (d) 1991

Directions for questions 5 to 7: ***Go through the data set given below and solve the questions based on it.***

In the five countries listed below, information with regard to mode of powering railway engines is provided. Railway engines can be powered only by one of the three modes-Natural Gas, Diesel or Electricity. A single railway engine will use only one of the three modes mentioned for whole of its life. Assume that all the data and questions given below pertain to the same time period.



Also given that the total number of engines powered by diesel in the given five countries above = 7030 (as given in the pie chart)

Q.5 What is the number of engines in India that are powered by electricity?
(a) 3300
(b) 2700
(c) 6000
(d) Cannot be determined

Q.6 If the number of engines in Russia accounts for 5% of the total number of engines in the world, then what percentage of the total engines in the world are powered by diesel?
(a) 110,000
(b) 27,500
(c) 14100
(d) cannot be determined

Q.7 Amongst the five countries, what is the average percentage of engines that are powered by Electricity?
(a) 52.4% (b) 47.6%
(c) 55.8% (d) 44.2%

Directions for questions 8 to 11: ***Go through the data set given below and solve the questions based on it.***

Name of Stock	Date of Auction	Date of Issue	Notified amount	Devolvement on PDs	Cut off price (in ₹)	Cut off yield (%)	Date of Maturity
7.56% GS 2014	02-Apr-09	06-Apr-09	8000	0	103.47	6.80	03-Nov-14
7.94% GS 2021	02-Apr-09	06-Apr-09	4000	567	102.5	7.62	24-May-21
6.05% GS 2019	09-Apr-09	13-Apr-09	8000	0	95.05	6.75	02-Feb-19
7.50% GS 2034	09-Apr-09	13-Apr-09	4000	0	97.35	7.74	10-Aug-34
7.56% GS 2014	17-Apr-09	20-Apr-09	8000	0	106.75	6.10	03-Nov-14
8.24% GS 2027	17-Apr-09	20-Apr-09	4000	0	107.82	7.44	15-Feb-27
6.05% GS 2019	24-Apr-09	27-Apr-09	8000	0	99.38	6.13	02-Feb-19

Q.8 For how many stocks, date of maturity is minimum 5 years ahead of date of auction?
(a) All but 1 stock (b) All but 2 stocks
(c) All but 3 stocks (d) None of these

Q.9 Nomenclature of the stocks is done in the following way:
7.56% GS 2014 - It means that desired yield from the Government stock (GS) in 2014 is 7.56%.
For how many of the stocks desired yield is more than cut-off yield?
(a) 3 (b) 4
(c) 5 (d) 2

10. How many stocks with a cut-off price of more than ₹100 have their cut-off yield more than its desired yield (use definition from above question if required)?
(a) 0 (b) 1
(c) 2 (d) 3

11. Mr Robert is quite an ambitious person. He wants to obtain a minimum desired yield of 8%. For that to happen, he buys exactly two stocks in different ratio. How many combinations can he have, out of 7 stocks given, such that his minimum desired yield is at least 8% (use information from previous questions)?
(a) Not possible (b) 6
(c) 7 (d) None of these

Exercise 8

Directions for questions 1 to 4: ***Refer to the table given below and answer the questions that follow.***

Following table gives some incomplete information on the marks obtained by four persons Amit, Binit, Charu and Dilip in four different subjects.

	Physics	Chemistry	Maths	English	Total
Amit	80	70	–	80	–
Binit	60	–	60	–	–
Charu	–	–	60	–	220
Dilip	90	–	70	60	–

Additional Information:

(i) Amit's average marks was 72.5, in all the four subjects.
(ii) The average marks in Physics for all four persons was 67.5.
(iii) Binit's Average marks for all four subjects was 1.5 times Charu's marks in physics.
(iv) Binit and Dilip scored the same marks in English. The average English marks were the same as the average Physics marks.
(v) The total marks in Chemistry was 10 less than the total marks in physics for all four persons.

Q.1 Who scored the lowest total?
(a) Amit (b) Binit
(c) Charu (d) Dilip

Q.2 The average marks for all four persons (for all the four subjects) is (approx.)
(a) 65.625 (b) 81.225
(c) 99.5 (d) 105.6

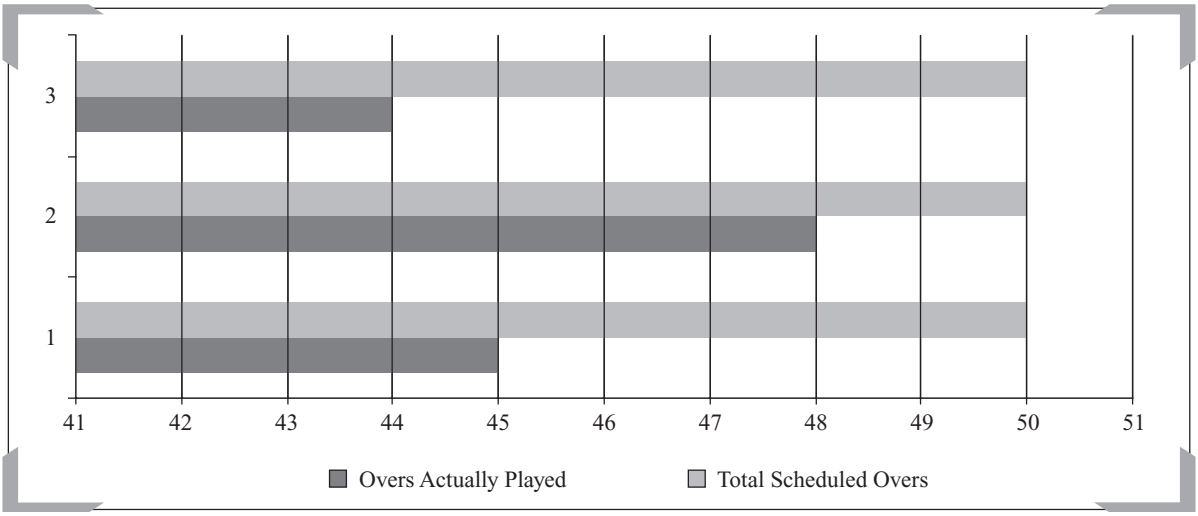
Q.3 Who is the highest scorer in chemistry?
(a) Amit (b) Binit
(c) Charu (d) Dilip

Q.4 Who is the lowest scorer in physics?
(a) Amit (b) Binit
(c) Charu (d) Dilip

Directions for questions 5 to 8: ***Go through the chart given below and solve the questions based on it.***

In the game of cricket, there are 11 batsmen who bat during the match of 50 overs. Two batsmen come to bat first and when any one of the two gets out, next batsman come to bat along with the one of the two batsmen left out. And so on, the next batsman comes to bat – in a fixed sequence for all the three matches. Only one batsman can get out for one ball. One over comprises of 6 balls—to be thrown one by one. Though if all the batsmen get out before scheduled 50 Overs, match ends at that point (known as Overs Actually Played).

Following bar chart shows total scheduled Overs and Overs actually played for first match (denoted by 1), second match (denoted by 2) and third match (denoted by 3).



Following table shows the runs scored in three matches series. Total runs scored = Runs Scored by first Five players + Runs scored by Remaining Last six players + Extra Runs.

India Vs Pakistan ODI Series 2012 – Runs Scored			
	1st Match	2nd Match	3rd Match
Runs Scored by 1st Five Players	18	75	80
Runs Scored by Remaining Last Six Players	187	72	70
Extra Runs	22	18	17

$$\text{Average Runs per over} = \frac{\text{Total Runs Scored}}{\text{Overs Actually Played}}$$

Q.5 In which of the matches, Indian Team's average runs per over is maximum?
(a) First match
(b) Second match

(c) Third match
(d) either first or second match

Q.6 What would have the total runs scored in the third match if Indian team would have played 50 overs with the same average which it maintained till the overs actually played?
(a) 180 (b) 190
(c) 200 (d) 170

Q.7 Mr Phani Ram, the team selector, has made following observations to improve the performance of the team:
(i) Performance of first five players has improved, whereas performance of last six players has gone down.
(ii) Had there been no extra runs, runs in second match would have decreased by maximum percentage.
(iii) If team would have played for full 50 overs, it would have scored maximum in first match.
How many of these observations are true?
(a) Only I and II but not iii
(b) Only ii and iii but not i
(c) Only I and iii but not ii
(d) All three

Q.8 If extra runs are not considered, which match has the lowest average runs per over?
(a) First match
(b) Second match
(c) Third match
(d) either second or third match

Directions for questions 9 to 10: ***Go through the data set given below and solve the questions based on it.***

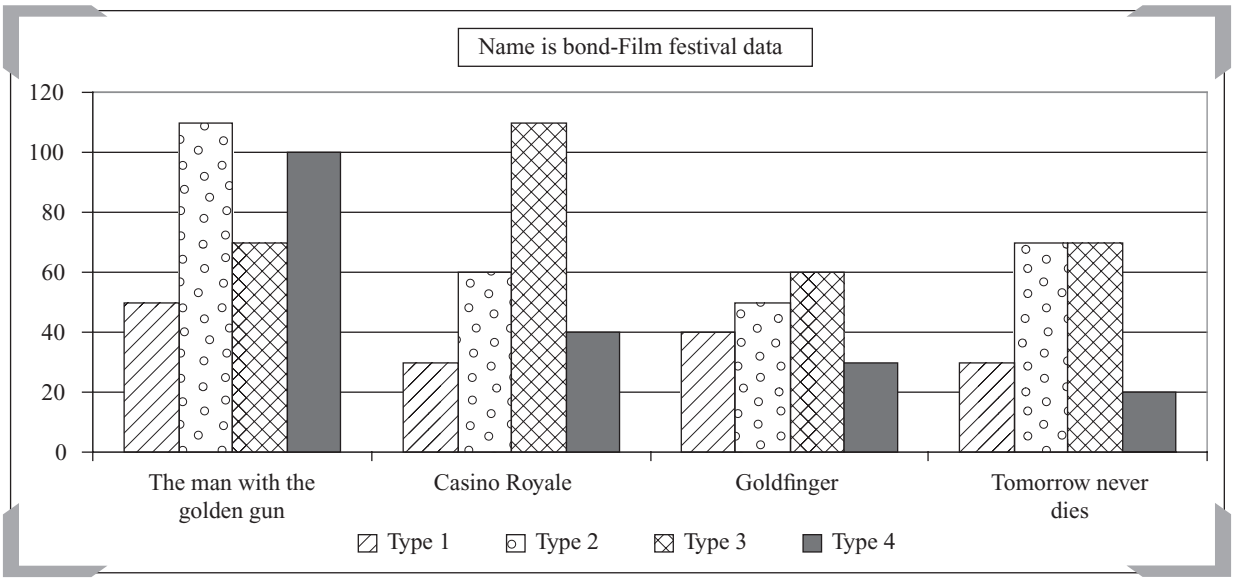
The following bar chart represents the detail regarding the number of persons who attended the James Bond film festival named "Name is Bond" where four movies – The man with the golden gun, Casino Royale, Goldfinger, and Tomorrow never dies were screened. Each person who attended the festival watched at least one of the four movies. Besides, there are four types of persons (out of which the first three types are characterized on the basis of their age):

Type 1 – Age > 60 years, who watched the movie.

Type 2 – Age > 30 years, but age not more than 60 years who watched the movie.

Type 3 – Age not more than 30 years who watched the movie.

Type 4 – Persons who watched only that movie.



All the data points are multiples of 10.

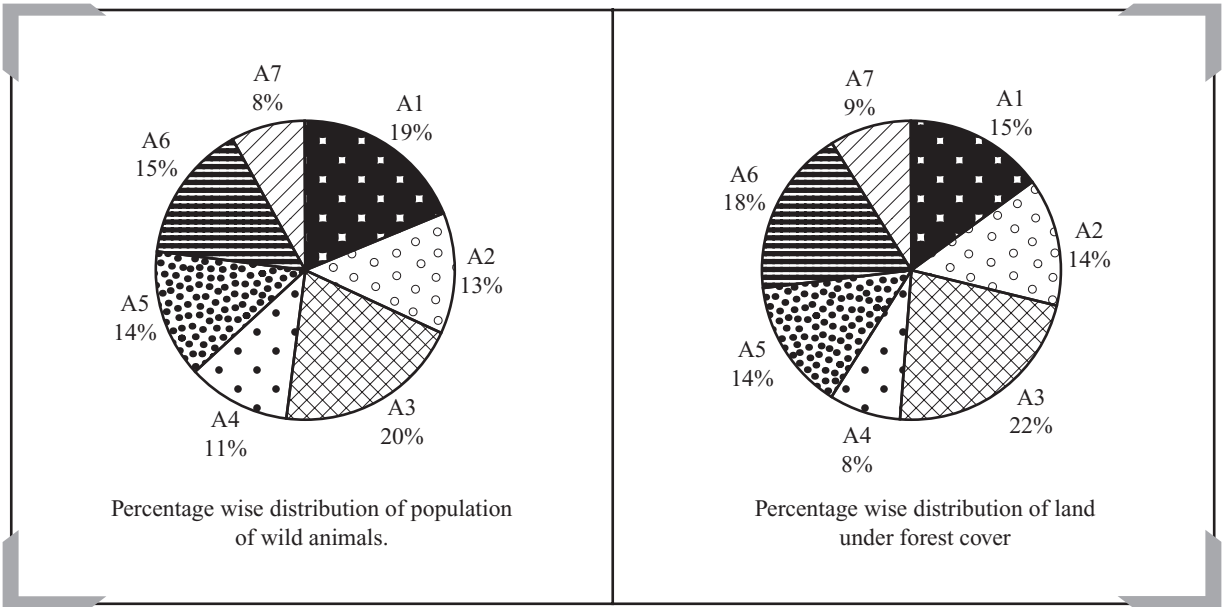
Q.9 What could be the maximum number of persons who watched all the four movies?
(a) 150 (b) 130
(c) 140 (d) 120

Q.10 What could be the maximum number of persons of age more than 60 years, who attended the festival?
(a) 200 (b) 150
(c) 130 (d) 140

Exercise 9

Directions for questions 1 to 4: ***Go through the data set given below and solve the questions based on it.***

Below given pie charts show the percentage population of wild animals and the percentage of land use under forest cover in different regions of the world in the year 2007.



Percentage wise distribution of population of wild animals.

Percentage wise distribution of land under forest cover

Following are the geographical regions:

A1 – Asia, China, India, **A2** – Australia, **A3** – Africa, **A4** – Europe, **A5** – Russia, **A6** – North & South America, **A7** – Antarctica. Population density is obtained by dividing population by land.

$$\text{Population density} = \frac{\text{Percentage Number of Animals}}{\text{Percentage Land Area Under Forest Cover}}$$

Q.1 If the population density of wild animals in Russia is 1, then what is the combined population density of (Africa and North & South America)?
(a) 0.79 (b) 0.84
(c) 0.88 (d) 0.94

Q.2 Which among the following has the fourth highest population density of wild animals?
(a) A5 (b) A7
(c) A3 (d) A2

Q.3 Population density of wild animals in Europe is how many times that of the population density of wild animals in Russia?
(a) 1.375 (b) 1.49
(c) 1.57 (d) 1.64

Q.4 If in the next 10 years, the population of wild animals in Antarctica will increase by 2.5% more than that in the rest of the world, what will be the percentage population of wild animals in Antarctica after 10 years?
(a) 9.5%
(b) 11.6%
(c) 15.7%
(d) Cannot be determined

Directions for questions 5 to 9: ***Go through the data set given below and solve the questions based on it.***

In a "Chocolate Eating Competition" held at dueNorth Inc. Dehradun, 10 contestants ate different number of Chocolates from 1 to 10. The following table gives the ratio of some of their scores. For example, Sonu ate double chocolates than Deepak; or Deepak ate half the number of chocolates eaten by Sonu.

	Deepak	Sonu	Manoj	Naveen	Mak	Julie	Hemant	Mohit	Kajal	Prince
Deepak	–	1 : 2			2 : 1					
Sonu	2 : 1	–								
Manoj	4 : 1		–							
Naveen				–						2 : 1
Mak					–					

Julie	–		2 : 3	
Hemant		–	1 : 3	
Mohit			–	
Kajal	3 : 2		–	
Prince				–

Q.5 What is the number of chocolate's eaten by Mohit?
(a) 3
(b) 7
(c) 5
(d) Cannot be determined

Q.6 What is the number of chocolate's eaten by Kajal as a percentage of the number of chocolates eaten by Prince?
(a) 60% (b) 55.55%
(c) 80% (d) 180%

Q.7 For how many out of 10 persons mentioned in this dataset, number of chocolates eaten cannot be determined?
(a) 0 (b) 1
(c) 2 (d) 4

Q.8 Which of the following statement is true?
(a) Manoj ate more number of chocolates than Deepak.
(b) Combined number of chocolates of Sonu and Manoj is equal to the number of chocolates eaten by Deepak.
(c) Combined number of chocolates of Hemant and Kajal is equal to number of chocolates eaten by Julie.
(d) All are true

Q.9 Number of chocolate's eaten by Sonu and Manoj together equals to which of the following?
(a) Kajal and Hemant together
(b) Deepak and Naveen together
(c) Twice the number of Julie's
(d) All are true

Q.10 A husband and wife have a combined age of 91 years. The husband is now twice as old as his wife was when he was as old as she is now. What is the difference between husband's age and wife's age?
(a) 12 (b) 13
(c) 14 (d) 11

Exercise 10

Directions for questions 1 to 3: ***Answer the questions on the basis of the information given below.***

Spam that enters our electronic mailboxes can be classified under several spam heads. The following table shows the distribution (out of 100%) of such spam worldwide over time. The total number of spam e-mails received during December 2002 was larger than the number received in June 2003. The total number of spam emails received during September 2002 was larger than the number received in March 2003. The figures in the table represent the percentage of all spam emails received during that period, falling into those respective categories.

Category	Sep-02	Dec-02	Mar-03	Jun-03
Adult	38	33	19	17
Health	25	30	37	45
Financial	11	19	5	18
Internet	5	3	10	6
Products	3	7	10	11
Scams	5	6	11	2
Others	13	2	8	1

Q.1 In which category was the percentage of spam e-mails increasing but at a decreasing rate?
(a) Financial (b) Scams
(c) Products (d) None of the above

Q.2 In the health category, the number of spam e-mails received in December 2002 as compared to June 2003
(a) was larger
(b) was smaller
(c) was equal
(d) Cannot be determined

Q.3 In the financial category, the number of spam e-mails received in September 2002 as compared to March 2003
(a) was larger
(b) was smaller
(c) was equal
(d) cannot be determined

Directions for questions 4 to 5: ***Answer the questions on the basis of the information given below.***

An industry comprises of four firms (A, B, C, and D). Financial details of these firms and of the industry as a whole for a particular year are given below. Profitability of a firm is defined as profit as a percentage of sales.

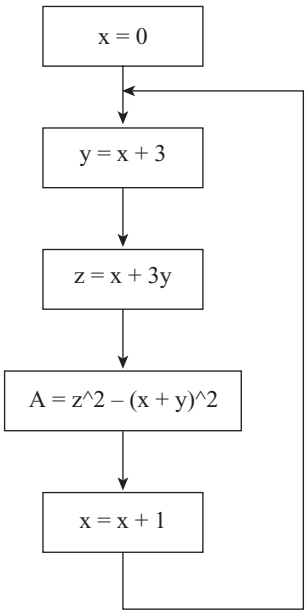
Figures in ₹	A	B	C	D	Total
Sales	24568	25468	23752	15782	89570
Operating costs	17198	19101	16151	10258	62708
Interest costs	2457	2292	2850	1578	9177
Profit	4914	4075	4750	3946	17684

Q.4 Which firm has the highest profitability?
(a) A (b) B
(c) C (d) D

Q.5 If firm A acquires firm B, approximately what percentage of the total market (total sales) will they corner together?
(a) 55% (b) 45%
(c) 35% (d) 50%

Directions for questions 6 to 8: ***Answer the questions on the basis of the information given below.***

A computer program follows an algorithm as shown by the following flow chart:



Answer the following questions on the basis of the information given below.

Q.6 When the cumulative value of Z will be 270, what would be the absolute difference between the cumulative value of $x + y$ up to this point and the cumulative value of z up to this point?
(a) 110 (b) 150
(c) 170 (d) 210

Q.7 What will be the value of A, when the cumulative value of z becomes 85?
(a) 672 (b) 864
(c) 360 (d) 504

Q.8 What will be the difference in values between z and x + y when A = 672?
(a) 11 (b) 13
(c) 16 (d) 18

Directions for questions 9 to 10: ***Answer the questions on the basis of the information given below.***

The head of a newly formed government desires to appoint five of the six elected members A, B, C, D, E and F to portfolio of Home, power, Defense, Telecom and Finance. F does not want any portfolio if D gets one of the five. C wants either Home or Finance or no portfolio. B says that if D gets either Power or Telecom then she must get the other one. E insists on a portfolio if A gets one.

Q.9 Which is valid assignment?
(a) A-Home, B-Power, C-defense, D-Telecom, E-Finance
(b) C-Home, D-Power, A-defense, B-Telecom, E-Finance
(c) A-Home, B-Power, E-defense, D-Telecom, F-Finance
(d) B-Home, F-Power, E-defense, C-Telecom, A-Finance

10. If A gets Home and C gets Finance, then which is NOT a valid assignment of defense and Telecom?
(a) D-Defense, B-Telecom
(b) F-Finance, B-Telecom
(c) B-Defense, E-Telecom
(d) B-Defense, D- telecom

Exercise 11

Directions for question 1 to 3: ***Answer the questions on the basis of the information given below.***

Rang Barsey Paint Company (RBPC) is in the business of manufacturing paints. RBPC buys RED, YELLOW, WHITE, ORANGE, and PINK paints. ORANGE paint can also be produced by maxing RED and YELLOW paints in equal proportions. Similarly, PINK paint can also produced by mixing equal amounts of RED and WHITE paints. Among other paints, RBPC sells CREAM paint, (formed by mixing WHITE and YELLOW in the ratio of 70:30) AVOCADO paint (formed by mixing equal amounts of ORANGE and PINK paint) and WASHEDORANGE paint (formed by mixing equal amounts of ORANGE and WHITE paint). The following table provides the price at which RBPC buys paints.

Colour	₹/Litre
RED	20
YELLOW	25
WHITE	15
ORANGE	22
PINK	18

Q.1 The cheapest way to manufacture AVOCADO paint would cost
(a) ₹19.50 per litre (b) ₹19.75 per litre
(c) ₹20.00 per litre (c) ₹20.25 per litre

Q.2 WASHEDORANGE can be manufactured by mixing
(a) CREAM and RED in the ratio 14:10
(b) CREAM and RED in the ratio 3:1
(c) YELLOW and PINK in the ratio 1:1
(d) RED, YELLOW and WHITE in the ratio 1:1:2

Q.3 Assume that AVOCADO, CREAM and WASHEDORANGE each sells for the same price. Which of the three is the most profitable to manufacture?
(a) AVOCADO
(b) CREAM
(c) WASHERDORANGE
(d) Sufficient data is not available

Directions for questions 4 to 6: ***Answer the questions on the basis of the information given below.***

Seven varsity basketball players (A, B, C, D, E, F and G) are to be honored at a special luncheon. The players will be seated on the dais in a row. A and G have to leave the luncheon early and so must be seated at the extreme right. B will receive the most valuable player's trophy and so must be in the centre to facilitate presentation. C and D are bitter rivals and therefore must be seated as far apart as possible.

Q.4 Which of the following cannot be seated at either end?
(a) C (b) D
(c) F (d) G

Q.5 Which of the following pairs cannot be seated together?
(a) B and D (b) C and F
(c) D and G (d) E and A

Q.6 Which of the following pairs cannot occupy the seats on either side of B?
(a) F and D (b) D and E
(c) E and G (d) C and F

Directions for questions 7 to 8: Answer the questions on the basis of the information given below.

Some children were taking free throws at the basketball court in school during lunch break. Below are some facts about how many baskets these children shot.

i. Ganesh shot 8 baskets less than Ashish
ii. Dhanraj and Ramesh together shot 37 baskets.
iii. Jugraj shot 8 baskets more than Dhanraj.
iv. Ashish shot 5 baskets more than Dhanraj
v. Ashish and Ganesh together shot 40 baskets.

Q.7 Which of the following statement is true?
(a) Ramesh shot 18 baskets and Dhanraj shot 19 baskets.
(b) Ganesh shot 24 baskets and Ashish shot 16 baskets.
(c) Jugraj shot 19 baskets and Dhanraj shot 27 baskets.
(d) Dhanraj shot 11 baskets and Ashish shot 16 baskets.

Q.8 Which of the following statement is true?
(a) Dhanraj and Jugraj together shot 46 baskets
(b) Ganesh shot 18 baskets and ramesh shot 21 baskets.
(c) Dhanraj shot3 more baskets than ramesh
(d) Ramesh and Jugraj together shot 29 baskets.

Directions for questions 9 and 10: ***Read the passage below and solve the questions based on it.***

There is an automobile company making two models of cars – C1 and C2. C1 and C2 give the profits of INR 3600 and INR 5400 per unit respectively.

Monthly resources available for the production of these two models are given below:

Labor hours available = 48000 labor hours

Doors available = 20,000 units (Left and right side doors are identical and can be used interchangeably in both the cars. Both the cars use the same door).

Monthly Resources used - C1 is a four door car where as C2 is a two door car.

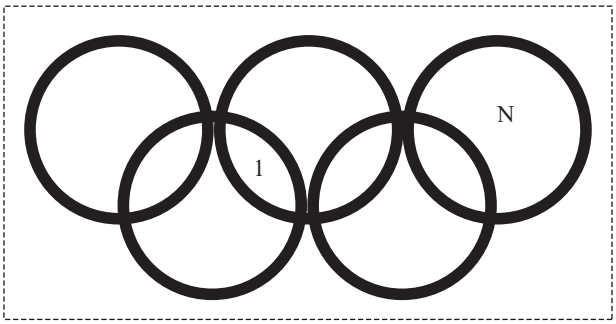
It takes 6 labour hours to assemble C1 and 10.5 hours to assemble C2.

Further it is also known that demand for C2 is limited to 3500 only per month whereas demand for C1 is unlimited.

Q.9 How many C1 and C2 respectively should be produced in this particular month?
(a) 3800, 2400 (b) 2400, 3800
(c) 3100, 3100 (d) 4400, 1800

Q.10 Sales dept. knows that it can raise the demand of C2 by 20% by just spending a mere sum of ₹1,00,000. Should the company go through this expenditure?
(a) Yes
(b) No
(c) cannot be determined

Directions for questions 11 to 12: ***Place digits 1 through 9 into each closed area so that the sum of the digits inside every circle is the same. 1 is already placed, as shown in the picture below.***



Q.11 What is the sum of the numbers placed in each of the circles?

(a) 9 (b) 11
(c) 13 (d) 7

Q.12 What is the value of N?

(a) 9 (b) 11
(c) 13 (d) 7

ANSWER KEYS

Exercise 1

1. (c) **2.** (b) **3.** (b) **4.** (d) **5.** (b) **6.** (a) **7.** (b) **8.** (c) **9.** (d) **10.** (b)

Exercise 2

1. (a) **2.** (b) **3.** (d) **4.** (b) **5.** (a) **6.** (d) **7.** (c) **8.** (c) **9.** (b) **10.** (b)
11. (a)

Exercise 3

1. (c) **2.** (b) **3.** (d) **4.** (d) **5.** (d) **6.** (c) **7.** (c) **8.** (a) **9.** (c) **10.** (c)

Exercise 4

1. (b) **2.** (b) **3.** (d) **4.** (d) **5.** (b) **6.** (a) **7.** (d) **8.** (d) **9.** (b) **10.** (c)

Exercise 5

1. (c) **2.** (b) **3.** (b) **4.** (a) **5.** (b) **6.** (b) **7.** (d) **8.** (b) **9.** (d) **10.** (d)
11. (d)

Exercise 6

1. (a) **2.** (b) **3.** (b) **4.** (c) **5.** (d) **6.** (b) **7.** (d) **8.** (b) **9.** (a) **10.** (b)

Exercise 7

1. (d) **2.** (b) **3.** (d) **4.** (b) **5.** (a) **6.** (d) **7.** (a) **8.** (d) **9.** (b) **10.** (a)
11. (b)

Exercise 8

1. (c) **2.** (a) **3.** (d) **4.** (c) **5.** (a) **6.** (b) **7.** (c) **8.** (b) **9.** (d) **10.** (d)

Exercise 9

1. (c) **2.** (d) **3.** (a) **4.** (d) **5.** (b) **6.** (d) **7.** (a) **8.** (a) **9.** (d) **10.** (b)

Exercise 10

1. (c) **2.** (d) **3.** (a) **4.** (d) **5.** (a) **6.** (b) **7.** (d) **8.** (c) **9.** (b) **10.** (d)

Exercise 11

1. (b) **2.** (d) **3.** (b) **4.** (c) **5.** (d) **6.** (c) **7.** (a) **8.** (a) **9.** (a) **10.** (b)
11. (b) **12.** (a)

Exercise 1

Solutions to Q.1 to 4:

1 Following is the list of ARPU:

	Air-Let	Alli-ance	Dofa-phone	Ear-cel	Bain-sNL
ARPU Jan 10	4.7	10.49	7.5	10.7	9
ARPU Jan 11	4.2	9.4	8.67	13.04	9.6

It can be seen clearly that Earcel is maximum for both the years. Hence it will be maximum combined also.

Hence, option (c) is the correct answer.

Alternatively, it can be observed that all the bars except Earcel gives less than 10 ARPU in the 1st year and in 2nd year, Earcel is maximum.

2 Following is the list of ARPU:

	Air-Let	Alli-ance	Dofa-phone	Ear-cel	BainsNL
ARPU Jan 10	4.7	10.49	7.5	10.7	9
ARPU Jan 11	4.2	9.4	8.67	13.04	9.6

Hence, option (b) is the correct answer.

3

VAS	Air-Let	Alli-ance	Dofa-phone	Ear-cel	Bain-sNL
2011	18%	9%	12%	22%	6%
Reve-nue	198	270	306	132	255

Statements (a) and (c) are true and (b) is false.

Hence, option (b) is the correct answer.

4 Data is given for January 2010, and question is asking for the whole year 2010. Hence cannot be determined.

Hence, option (d) is the correct answer.

Solution to Q.5 to 7:

This question set is purely based upon observation. That also, very careful observation. During online CAT, such kind of questions have been reported by the students where solving a question was more a job of 'eyes' than the job of 'brain'.

5. For Verma family, saving is negative in 2007, so we do not need to check for other years.

For Sharma family also, saving is negative in 2007.

For Sinha and Patel family, savings is negative in first year itself.

For Agrawal family, this is zero for 2008, and positive for all the years. Since question is asking for non-negative value, Agrawal family's data satisfies this condition.

Hence, option (b) is the correct answer.

6. Only two families have positive savings—Verma and Agrawal. Agrawal's savings is more than Verma's savings.

Hence, option (a) is the correct answer.

7. Sharma, Sinha and Patel family have negative total savings.

Hence, option (b) is the correct answer.

Following is the detailed list of savings:

	2006	2007	2008	2009	2010	Summa-tion
Verma	200	–100	100	100	100	400
Sharma	100	–100	–200	–100	100	–200
Sinha	–100	–100	–300	–100	400	–200
Patel	–100	–100	100	–200	–200	–500
Agraw-al	100	100	0	100	200	500

8 to 10

8. Following sectors have more than 2% NPA loan - Metal Products, All Engineering, Cotton Textiles, Jute Textiles, Other Textiles, Tea and Food Processing.

Hence, option (c) is the correct answer.

9. It can be clearly seen that maximum value occurs for Tea (roughly 21%). This question was a test of observation only.

Hence, option (d) is the correct answer.

10. Total standard loan = 135989.6 cr

Total disbursal = 139571.8

Hence percentage = 97.43%

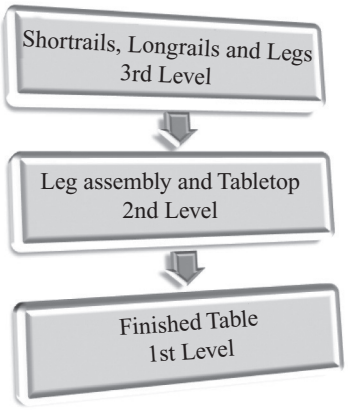
Alternatively, it can be observed that NPA loan as a percentage of total loans come equal to 2% – 3%. Hence Standard loan = 100% – (2% to 3%) = 97% – 98%.

Hence, option (b) is the correct answer.

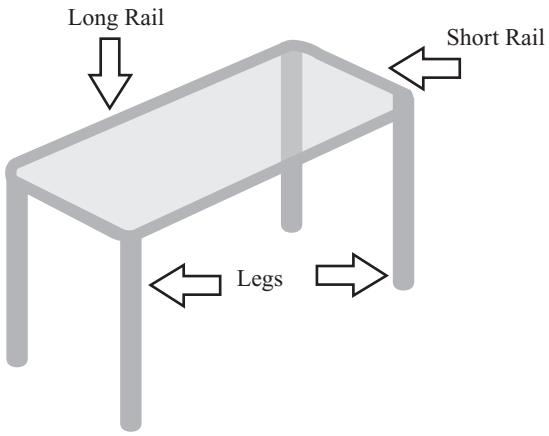
Exercise 2

Storyline

There are three levels of work in table making:



For the sake of understanding the terms used (Short rail and long rail), have a look at the following picture (though we really don't need to understand this to solve the questions):



1. We need to have 200 units of finished table in week 4.

   For 200 tables, we need to have the following:

   200 units of tabletop and 200 units of leg assembly.

   200 units of leg assembly = 200 × (2 units of short rails, 2 units of long rails and 4 units of legs) = 400 units of long rails + 400 units of short rails + 1600 legs.

   We already have 50 finished tables and 50 table top with us. So we need to order 100 tabletops.

   Lead time involved related to table top are – Purchase table top (2 weeks) and assemble table (1 week). So Total Lead time = 3 weeks.

   Since tables are to delivered in week 4, hence we need to place the order 3 weeks back (keeping a lead time of 3 week). Hence table top shall be ordered in 4 – 3 = first week.

   Hence, option (a) is the correct answer.

2. Total demand of finished table in week 4 = 200 tables.

   Net availability right now:

Parts	Units
Finished Table	50
Leg assembly	100
Legs	150

   We already have 50 finished table, so we need to manufacture 150 tables.

   For this, we need to have 150 × 4 = 600 legs.

   Out of this, following number of legs are available:

   100 leg assembly contains = 100 × 4 = 400 legs.

   Spare legs available = 150 legs.

   So total number of legs available = 550 legs.

   Hence we need to order 600 – 550 = 50 legs.

   Hence, option (b) is the correct answer.

3. Before we deliver the demand of week 6, we need to deliver the demands of previous weeks – week 4 and week 5.

   So, in effect, total demand to be delivered = Demand of week 4 + demand of week 5 + demand of week 6 = 200 + 150 + 100 = 450 finished tables

   So, total number of short rails required = 450 × 2 = 900 short rails

   We are required to decide that when and how many Short rails shall be ordered?

   Let us first calculate that how many short rails are present right now.

   The availability of parts at present:

Parts	Units
Finished Table	50
Leg assembly	100
Legs	150
Short rails	50
Long rails	0
Table top	50

   Total number of short rails present = 50 × 2 (in Finished Table) + 100 × 2 (in Leg Assembly) + 50 (Short rails) = 250 Short rails.

   Hence total number of short rails required to be ordered = 900 – 250 = 650 short rails.

Since none of the options contain 650 short rails in it, we are not required to check further that when is it required to be ordered.

Hence option (d) None of these is the answer.

Hence, option (d) is the correct answer.

Storyline of 4 to 7

Line charts are typically used for trend analysis for chronological data. A clear trend of price change can be seen through the line chart—with a word of caution because gap in number of years between two data point is not same. Table given below presents the index value for Beverages, based upon the data from line chart, and two other items. As stated in the first line, you may expect questions which ask to compare the trends of different items across the years.

Solution and Explanation for 4 to 7

4. This question needs a simple calculation. Price per kg of tea in 2009 = ₹170/kg.

Hence quantity that can be bought for ₹1000 = $\frac{1000}{170}$ = ₹5.88/kg

Hence, option (b) is the correct answer.

5. Question is asking for change, and not increase or decrease. So we are required to work upon with magnitude only, and sign (positive or negative) is not important.

Year Span	Total Change	Total Years	Change/ year
2000 – 2005	75	5	15
2005 – 2007	105	2	52.5
2007 – 2008	80	1	80
2008 – 2009	65	1	65

It is obvious that change/year is minimum in the year 2000 – 2005.

Hence, option (a) is the correct answer.

6. Index has the following pattern: Increase – Increase – Decrease – Decrease

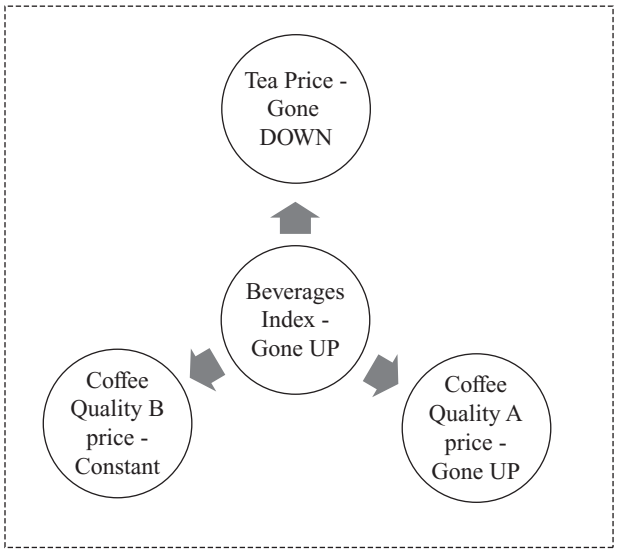
Only Coffee Quality A shows this trend.

Hence, option (d) is the correct answer.

7. Beverages Index in the year 2000 = 100

Beverages Index in the year 2009 = 104. So there is a rise in index.

It can be observed that Tea price has remained same and price of Coffee Quality A has gone down in 2009 over 2000.



Only the price of Coffee Quality A has gone up. So it can be concluded that Coffee quality A has the maximum impact on the beverages index and hence contributes most.

Hence, option (c) is the correct answer.

Storyline of 8 to 11

Table provides percentage share (or composition) of Factories, Employment, Fixed Capital, Variable cost and Value added among four sectors viz. Government sector, Public sector, Private sector and Joint sector.

Key point here is to understand that Government sector is broken down into three sub sectors. For all the data given in Government sector, corresponding data for sub sectors is provided in the bar chart.

Solution and Explanations for 8 to 11

8. Value addition per worker = $\frac{\text{Value Added}}{\text{No. of Employes}}$

Total value added = ₹225 million and Total work force = 76 million.

We go by the options and calculate Value added per worker for all the given options:

For Central = $\frac{10\% \text{ of } ₹225 \text{ million}}{6\% \text{ of } 76 \text{ million}}$

For State = $\frac{3\% \text{ of } ₹225 \text{ million}}{6\% \text{ of } 76 \text{ million}}$

For Central/State = $\frac{12\% \text{ of } ₹225 \text{ million}}{3\% \text{ of } 76 \text{ million}}$

$$\text{For Public} = \frac{8\% \text{ of } ₹225 \text{ million}}{8\% \text{ of } 76 \text{ million}}$$

Calculation Short Cut:

Inserted of calculating the real value in the above four options, what we can do is quick ratio comparison. We can observe that $\frac{₹225 \text{ million}}{76 \text{ million}}$ is present in all the ratios. Let us assume $\frac{₹225 \text{ million}}{76 \text{ million}} = N$.

So the four ratios become like the following:

$$\text{For Central} = \frac{10\% \text{ of } ₹225 \text{ million}}{6\% \text{ of } 76 \text{ million}} = \frac{10\%}{6\%}N$$

$$\text{For State} = \frac{3\% \text{ of } ₹225 \text{ million}}{6\% \text{ of } 76 \text{ million}} = \frac{3\%}{6\%}N$$

$$\text{For Central/State} = \frac{12\% \text{ of } ₹225 \text{ million}}{3\% \text{ of } 76 \text{ million}}$$

$$= \frac{12\%}{3\%}N$$

$$\text{For Public} = \frac{8\% \text{ of } ₹225 \text{ million}}{8\% \text{ of } 76 \text{ million}} = \frac{8\%}{8\%}N$$

It can be now clearly seen that the ratio is largest in case of Central/State.

Hence, option (c) is the correct answer.

In such questions, we can do the proceeding in a nutshell like the following:

Value added per worker for various sectors will be proportional to following ratios:

Central	10/6
State	3/6
Central/state	12/3
Public	8/8

9. Using the method given in A1:

Fixed capital per factory will be proportional to the following ratios:

Central	5/8
State	4/4
Central/state	5/6
Public	6/12

Hence, option (b) is the correct answer.

10. If the variables are proportional to the number of employees and the production per employee, then we can say that the variable cost is directly proportional to the production. Since the variable cost is maximum for private sector, it will also have the maximum production.

Hence, option (b) is the correct answer.

11. Since options are not so close, we can take 20.012% = 20%

If 20% of govt. fixed capital is equal to $200 million ⇒Total govt. sector fixed capital = $ 1000 m which is equivalent to 14% of the total fixed capital. Now, 25% of Govt. investment in joint sector i.e., 25% of the 8% of the total=2% of total fixed capital will be given by:

$\frac{1000 \times 2}{14}$ = $ 143 million

Value in ₹is given by: 143 × 55 = ₹7865 million

Hence, option (a) is the correct answer.

Exercise 3

Storyline of 1 to 4

Question mentions the percentage change in the sales revenue of five companies. Understand that unless price per article is mentioned, we cannot find out the sales volume. To solve the questions ahead, you may be required to use (a) Successive Percentage change expression, (b) Product Stability Ratio.

Solution and Explanations for 1 to 4

1.

Company	From 2010 to 2011	From 2011 to 2012
D	20%	%x

Method 1:

It is given that company D's revenue in 2010 is same as its revenue in 2012. So the increase (in amount) in 2011 shall be compensated (negatively) in 2012. Assume that the revenue in 2010 is ₹100.

$₹100 \xrightarrow{20\%\uparrow} ₹120 \text{ (in 2011)} \xrightarrow{x\%\downarrow} ₹100 \text{ (in 2012)}$

So percentage decrease = $\frac{\text{Decrease}}{\text{Initial Value}} \times 100$

$$= \frac{20}{120} \times 100 = 16.66\%$$

Method 2: Use product stability ratio to find out the percentage decrease. Corresponding to percentage increase of 20% (1/5), percentage decrease should be (1/6) = 16.66%

[For a detailed account on Percentage, go through the book "Quantitative Aptitude and Data Interpretation for CAT " written by me].

Hence, option (c) is the correct answer.

2. ₹100 $\xrightarrow{20\%\uparrow}$ ₹(in 2011) $\xrightarrow{15\%\downarrow}$ ₹102 (in 2012).

Hence, option (b) is the correct answer.

3. It is like population of two countries are same this year, and we have been asked to find out a relation between their populations two years back. It is not possible to determine. Hence option (d) cannot be determined is the answer.

Hence, option (d) is the correct answer.

4. Information given in the question set is regarding the sales value. Hence any question regarding sales volume cannot be answered. Hence option (d) cannot be determined is the answer.

Hence, option (d) is the correct answer.

Storyline of 5 to 7

As explained in the opening statements, number of respondents can be counted up as per the requirement in the individual question.

Solution and Explanation for 5 to 7

5. We have to find out the minimum number of respondents less than age 40 years.

Following is the number of respondents aged less than 40 years

No. of children	Male	Female	Total
0	1	1	2
1	1	1	2
2	1	1	2
3	2	1*	3
Total	5	4	9

*- Out of 2 females, one has to be of 40 years. Since question is asking for minimum number of respondent less than 40 years, we can count only one.

Percentage of minimum respondents aged less than 40 years = $\frac{9}{30}\times 100 = 30\%$

Hence, option (d) is the correct answer.

6. We have to find out the maximum number of respondents aged more than 35 years. Following is the number of respondents aged:

No. of children	Male	Female	Total
0	1	4	5
1	0	7	7
2	7	3	10
3	0	1	1
Total	8	15	23

Percentage of maximum respondents aged less more than 35 years = $\frac{23}{30}\times 100 = 76.67\%$

Hence, option (c) is the correct answer.

7. Number of respondents in the given age bracket = 4

Hence percentage respondents = $\frac{4}{30}\times 100$

$= 13.33\%$

Hence, option (c) is the correct answer.

StoryLine of 8 to 10

Method 1:

This is a classical analytical reasoning question involving data—you are expected to match the variable (Name of person – Number of Idlis and Vadas eaten) as per the conditions given.

I have put this set in this book because one is required to crack the data (number of idlis/vadas eaten) using the concept of ratio to solve this set.

Solution and Explanation:

To solve such questions, it is advisable to draw table using the information given – one by one:

Using point (i):

(a) Number of Vadas eaten by Ignesh is three times the number of vadas consumed by somebody. Hence number of vadas eaten by Ignesh should be 3 times of a number. Only possibility here = 6

(b) We also know that the person **who eats four idlis eats two vadas**. (So that Ignesh can eat three times the number of vadas eaten by this person).

	Idlis					Vadas				
Name	1	4	5	6	8	0	1	2	4	6
Ignesh						No	No	No	No	Yes
Sandeep										No
Mukesh										No
Daljit										No
Bimal										No

Using point (ii): This does not give any concrete information. So we move on to the next point (iii).

Using point (iii): This does not give any concrete information. So we move on to the next point (iv).

Using point (iv):

(a) **Person who eats One** Idli eats **Zero Vada.**

(b) He is not Mukesh. So Mukesh cannot eat 0 (zero) vadas.

So we can fill the relevant blocks in the grid.

	Idlis					Vadas				
Name	1	4	5	6	8	0	1	2	4	6
Ignesh						No	No	No	No	Yes
Sandeep										No
Mukesh	No					No				No
Daljit										No
Bimal										No

Using point (v):

(a) Daljit eats both idli and vada. So we'll put a NO in 0 Vadas (Zero Vadas).

	Idlis					Vadas				
Name	1	4	5	6	8	0	1	2	4	6
Ignesh						No	No	No	No	Yes
Sandeep										No
Mukesh	No					No				No

	Idlis	Vadas	
Daljit		No	No
Bimal			No

Using Point (vi):

(a) Number of vadas eaten by Mukesh = Half of the number of vadas eaten by somebody (let us call him X).
This gives us two possibilities – either Mukesh eats 2 vadas or 1 vada. In any case Mukesh cannot eat 4 vadas.

(b) Number of idlis eaten by Mukesh = Half of the number of idlis eaten by somebody (the same guy X).
In this case, the only possibility is – Mukesh eats 4 idlis and that 'somebody X' eats 8 idlis.
We'll fill these information in the relevant blocks of the grid:

	Idlis					Vadas				
Name	1	4	5	6	8	0	1	2	4	6
Ignesh		No				No	No	No	No	Yes
Sandeep		No								No
Mukesh	No	Yes	No	No	No	No			No	No
Daljit		No				No				No
Bimal		No								No

(New blocks have been filled using ***bold and italics*** font).
Using point (vii):

(a) Bimal eats two more idlis than Ignesh ⇒Only possible option for this to happen is: Bimal = 8 idlis and Ignesh = 6 idlis.

	Idlis					Vadas				
Name	1	4	5	6	8	0	1	2	4	6
Ignesh	No	No	No	Yes	No	No	No	No	No	Yes
Sandeep		No		No	No					No
Mukesh	No	Yes	No	No	No	No			No	No
Daljit		No		No	No	No				No
Bimal	No	No	No	No	Yes					No

(New blocks have been filled using ***bold and italics*** font).

(b) Ignesh eats two more vadas than Bimal ⇒Ignesh eats 6 vadas, so, Vimal eats 4 vadas.

	Idlis					Vadas				
Name	1	4	5	6	8	0	1	2	4	6
Ignesh	No	No	No	Yes	No	No	No	No	No	Yes
Sandeep		No		No	No				No	No
Mukesh	No	Yes	No	No	No	No			No	No
Daljit		No		No	No	No			No	No
Bimal	No	No	No	No	Yes	No	No	No	Yes	No

(New blocks have been filled using ***bold and italics*** font).
Now, we have used all the direct statements. Its time to join two or more statements together to fill in the remaining blocks.
Using (i) b - the person **who eats four idlis eats two vadas** ⇒Since Mukesh **eats four idlis,** Mukesh eats two vadas.

	Idlis					Vadas				
Name	1	4	5	6	8	0	1	2	4	6
Ignesh	No	No	No	Yes	No	No	No	No	No	Yes
Sandeep		No		No	No			No	No	No
Mukesh	No	Yes	No	No	No	No	No	Yes	No	No
Daljit		No		No	No	No		No	No	No
Bimal	No	No	No	No	Yes	No	No	No	Yes	No

(New blocks have been filled using ***bold and italics*** font).
Now, for Daljit in Vadas, only one block is empty. This is shown in grey colour.

	Idlis					Vadas				
Name	1	4	5	6	8	0	1	2	4	6
Ignesh	No	No	No	Yes	No	No	No	No	No	Yes
Sandeep		No		No	No			No	No	No
Mukesh	No	Yes	No	No	No	No	No	Yes	No	No
Daljit		No		No	No	No	??	No	No	No
Bimal	No	No	No	No	Yes	No	No	No	Yes	No

This further fills in the grey cells. Other cells filled in this way are shown in grey colour:

	Idlis					Vadas				
Name	1	4	5	6	8	0	1	2	4	6
Ignesh	No	No	No	Yes	No	No	No	No	No	Yes
Sandeep		No		No	No		No	No	No	No
Mukesh	No	Yes	No	No	No	No	No	Yes	No	No
Daljit		No		No	No	No	Yes	No	No	No
Bimal	No	No	No	No	Yes	No	No	No	Yes	No

This leaves us with only one option for Sandeep: Number of vadas eaten = 0.

	Idlis					Vadas				
Name	1	4	5	6	8	0	1	2	4	6
Ignesh	No	No	No	Yes	No	No	No	No	No	Yes
Sandeep		No		No	No	Yes	No	No	No	No
Mukesh	No	Yes	No	No	No	No	No	Yes	No	No
Daljit		No		No	No	No	Yes	No	No	No
Bimal	No	No	No	No	Yes	No	No	No	Yes	No

(Shown in grey cell).

Using (iv) a - **Person who eats One Idli** eats **Zero Vada.** Since **Sandeep** eats **zero Vada,** he eats **One Idli.**

	Idlis					Vadas				
Name	1	4	5	6	8	0	1	2	4	6
Ignesh	No	No	No	Yes	No	No	No	No	No	Yes
Sandeep	Yes	No	No	No	No	Yes	No	No	No	No

Mukesh	No	Yes	No	No	No	No	No	Yes	No	No
Daljit	No	No	Yes	No	No	No	Yes	No	No	No
Bimal	No	No	No	No	Yes	No	No	No	Yes	No

(new blocks have been shown in grey colour).

This leaves only one option for Sandeep – 5 idlis (Shown in above table).

Finally, we arrive at the following table:

	Idlis					Vadas				
Name	1	4	5	6	8	0	1	2	4	6
Ignesh	No	No	No	Yes	No	No	No	No	No	Yes
Sandeep	Yes	No	No	No	No	Yes	No	No	No	No
Mukesh	No	Yes	No	No	No	No	No	Yes	No	No
Daljit	No	No	Yes	No	No	No	Yes	No	No	No
Bimal	No	No	No	No	Yes	No	No	No	Yes	No

Summary Chart

	Idli	Vada
Ignesh	6	6
Sandeep	1	0
Mukesh	4	2
Daljit	5	1
Bimal	8	4

8. Daljit eats 5 idlis.

Hence, option (a) is the correct answer.

9. Ignesh eats 6 vadas.

Hence, option (c) is the correct answer.

10. Use statement (ii) – three persons eat without chutney.

Hence, option (c) is the correct answer.

Method 2:

We can make table for this arrangement with 5 rows (1 for each friend) & 4 columns showing their names, & number of Idli (eaten by them), number of Vada (eaten by them), and with chutney(yes/no, whether they consumed chutney or not). The numbers of Idlis are 1, 4, 5, 6 & 8 while the numbers of vadas are 0, 1, 2, 4 & 6.

The number of Vadas eaten by Ignesh is 3 times the number of Vadas eaten by the person who ate 4 Idlis. So, Ignesh must have eaten 6 Vadas & the person who ate 4 Idlis must have eaten 2 Vadas. The information about Ignesh can be shown in 1st row & about other person in 2nd row

The person who ate 1 Idli did not ate Vada & also he didn't consume Chutney. He is not Mukesh. This information can be filled in 3rd row

Bimal ate 2 more Idlis & 2 less Vadas than Ignesh. So, he must have eaten 4 Vadas. There is only 1 possibility for numbers of Idlis eaten by them & it is 6 & 8 Idlis by Ignesh & Bimal. This information (about Bimal) can be filled in 4th row & we also get number of Idlis eaten by Ignesh which can be filled in row 1

The person who ate 4 Vadas did not consumed Chutney, so Bimal did not consumed Chutney. The table obtained is as:

Name	No. of Idlis	No. of Vadas	Consumed Chutney
Ignesh	6	6	
	4	2	
× Mukesh	1	0	No
Bimal	8	4	No

Mukesh ate half as many Vadas as the person who ate twice as many Idlis as he ate. So, the other person must have eaten exactly twice as many Idlis & Vadas as Mukesh. The only possibility is that the other person is Bimal & Mukesh is person in row 2nd. It is also given that Mukesh didn't consumed Chutney. Daljit ate Idlis & Vadas & he also consumed Chutney, so he must be shown in row 5th with 5 Idlis & 1 Vada & Yes for Chutney consumed. The 3rd row must have Sandeep. Exactly 3 persons did not consume Chutney, so 2 must have consumed Chutney. One of them is Daljit & other must be Ignesh (as he is the last person left about whom we still don't know whether he consumed Chutney or not)

Name	No. of Idlis	No. of Vadas	Consumed Chutney
Ignesh	6	6	Yes
Mukesh	4	2	No
Sandeep	1	0	No
Bimal	8	4	No
Daljit	5	1	Yes

8. Daljit eats 5 idlis.

Hence, option (a) is the correct answer.

9. Ignesh eats 6 vadas.

Hence, option (c) is the correct answer.

10. Ignesh eats 6 Idlis & 6 Vadas (i.e., equal number of Idlis & Vadas). He also consumed Chutney.

Hence, option (c) is the correct answer.

EXERCISE 4

Storyline of 1 to 5

Based upon the concepts of Time Speed and Distance (TSD), this set requires you to use the fundamentals and basic formula Distance = Time × Speed. There are five stretches of the whole journey from Chandigarh to Delhi – Chandigarh to Ambala, Ambala to Kurukshetra, Kurukshetra to Saharanpur, Saharanpur to Panipat and Panipat to Delhi. Data to calculate the time taken in any stretch is given for two bus services – Patel Roadways and Rajan Roadways. Since total distance is given (=250 km), speed of the bus services for the whole journey can be calculated. Though you should keep in your mind that NOT all the stretches are of equal length, so despite time taken in any stretch is given, speed in any particular stretch cannot be calculated.

Solution and Explanation for 1 to 5

1. Total time taken by Patel roadways bus = 5 hours

Average speed of Patel roadways bus = $\frac{250}{5}$ = 50 km/h

Total time taken by Rajan roadways bus = 4.5 hours

Average speed of Patel roadways bus = $\frac{250}{4.5}$ = 55.55 km/h

[Instead of calculating $\frac{250}{4.5}$, you should calculate $\frac{500}{9}$ = 55.55 kmph]

Hence slower by 5.55 km/h.

Hence, option (b) is the correct answer.

2. Though individual speed cannot be calculated, ratio of speeds can be calculated. It can be seen that time taken by both bus services is same between CHD to AB.

Hence, option (b) is the correct answer.

3. Distance between any two stretches is not given. So, despite time taken between any two stretches can be calculated by taking the difference, we cannot calculate the speed.

Hence, option (d) is the correct answer.

4. This question allows us to have the assumption that all the stretches are of equal length. We can answer this question without calculating the actual speed. We just have to see that in which stretch time taken to travel is maximum. More is the time taken, less is the speed.

Time taken to travel from SH to PAN is 1hour 28 min, which is the highest. Hence, speed is lowest on this stretch.

Hence, option (d) is the correct answer.

5. We don't need to go through the table given to solve this question. This question is based upon the simple application of ratio/percentage in TSD.

If speed decreases by 20% then time increases by 25% $\left(=\frac{1}{0.8}=1.25\right)$.

Hence, option (b) is the correct answer.

Solution and Explanation for 6 to 9

6. Total price of fruits with Chunmun is 23 × 16 + 46 × 24 + 7 × 40 + 20 × 34 + 5 × 28 + 16 × 30 = ₹368 + ₹1104 + ₹280 + ₹680 + ₹140 + ₹480 = ₹3052.

Total number of fruits with Chunmun is 16 + 24 + 40 + 34 + 28 + 30 = 172.

Average price of fruits with Chunmun = $\frac{3052}{172}$ = ₹17.74

Closest value given in the options is ₹18.

Hence, option (a) is the correct answer.

7. The total price of mangoes with Chunmun is 16 × 23 = ₹368.

Total price of 14 mangoes = 368 – (20 + 28) = ₹320

Out of the given 14 mangoes assume that maximum number of mangoes have price equal to ₹21.

The maximum price of any mango out of these 14 mangoes is ₹27

So, 9 × 21 + 1 × 23 + 4 × 27 = ₹320

Therefore, the number of mangoes whose price is more than ₹21 is 1 + 4 + 1 = 6.

Hence, option (d) is the correct answer.

8. The price of the 18 peaches with Chunmun whose price is not known to us = X

X = 20 × 34 – (16 + 26 + 4 × 22 + 10 × 18) = ₹370

Assume that maximum number of peaches have price equal to ₹17

370 = 25 × 8 + 17 × 10. Number of peaches with Chunmun whose price is at least ₹25 is at most 8 + 1 = 9.

Hence, option (d) is the correct answer.

9. The total price of the guavas with Chunmun is 5 × 28 = 140

The total price of the 26 guavas whose price is not known is 140 – (3 + 8) = ₹129.

Assume maximum number of guavas have price equal to ₹7

129 = 8 × 7 + 1 × 5 + 17 × 4. Therefore, the number of guavas with Chunmun whose price is less than the average price of the guavas with Chunmun is at least 17 + 1 = 18.

Hence, option (b) is the correct answer.

10. Since trains are meeting, both the trains are at the same point. If both the trains (or two persons) are at the same point, they will be equidistant from all the points on this earth.

Hence, option (c) is the correct answer.

Exercise 5

Storyline of 1 to 4

Table presents the population data of Indian and 15 states/ UTs for two years—2001 and 2011. Further, table also gives the sex ratio of these states under two headings—Age less than 7 years and 7 years and above. Since a unified data is also given, this gives rise to the case of weighted average.

Solution and Explanation for 1 to 4

1. States that show the same trend are—Uttarakhand, NCT of Delhi, Rajasthan, Uttar Pradesh, Sikkim, Arunachal Pradesh, Nagaland and Manipur = 8 states.

Hence, option (c) is the correct answer.

2. For every 1000 males, there 916 females in Bihar. Using this we can find out the percentage of females in the total population of Bihar.

Actual Calculation:

Percentage of females = $\frac{916}{1916}\times 100 = 47.8\%$

Approximation Short Cut:

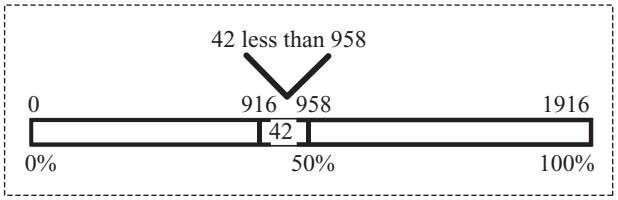
Since number of males is more than number of females, hence percentage of males will be more than the percentage of females. So percentage of males > 50% and percentage of females < 50%. Due to this, we can eliminate options (d) and (a).

Total population of Bihar = 916 x + 1000 x = 1916 x

We are required to calculate: Percentage of females = $\frac{916}{1916}$ [we have removed x from the numerator and denominator]

Knowing the fact that females' population is less than 50% and the remaining options hovering around 47%-49%, we benchmark the whole data around 50%.

50% of 1916 = $\frac{1}{2}\times 1916 = 958$



1% of 1916 = 19.16 = Approx. 20

So, 42 is approx. 2.1% of 1916. Hence 916 is 2.1% less than 50% = 47.9%. Closest option is option (b) 47.9%.

Alternate Solution

Female % = $\frac{916}{1916}\times 100$

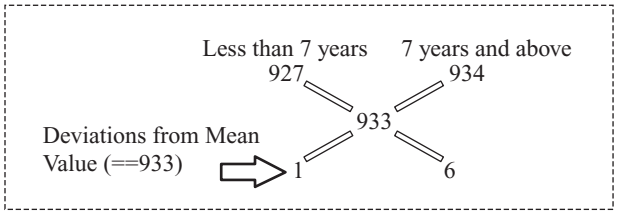
Since all options are near 50%, lets calculate 50% of 1916 first.

50% of 1916 = $\frac{1}{2}\times 1916 = 958$ which is more than 916, therefore options (a) & (d) gets eliminated.

(50% – 2%) = 48% of 1916 = 958 – 39.2 = 918.8 which is near and more than 916.

Hence, option (b) is the correct answer.

3. This is a direct question on Weighted Average concept. We can solve this question using Criss Cross solving method of Alligation:



So, $\frac{\text{Children of less than 7 years}}{\text{Aged 7 years and above}} = \frac{1}{6}$

Hence percentage of children of age less than 7 years out of total population = $\frac{1}{7}\times 100 = 14.28\%$.

Hence, option (b) is the correct answer.

4. Using the method of alligation (as shown in Q3), we can simply conclude that:

For all the states/UTs, in which value of "child population less than 7 years" is more than the state's or UT's value, percentage of "child population less than 7 years" will be 50% or more.

Now we just have to see that for how many states/UTs, "child population less than 7 years" is more than the value given for the whole state/UT.

State/ UT	India/States/Union Territory #	Sex ratio (females per 1,000 males)			
		Total population	Child population (less than 7 years)	Population (7 years and above)	Column (6) > Column (4)?
Col. (1)	Column (2)	Column (4)	Column (6)	Column (8)	
01	Jammu & Kashmir	883	859	887	Less
02	Himachal Pradesh	974	906	983	Less
03	Punjab	893	846	899	Less
04	Chandigarh	818	867	812	More
05	Uttarakhand	963	886	975	Less
06	Haryana	877	830	885	Less
07	NCT of Delhi	866	866	866	Equal
08	Rajasthan	926	883	935	Less
09	Uttar Pradesh	908	899	910	Less
10	Bihar	916	933	912	More
11	Sikkim	889	944	883	More
12	Arunachal Pradesh	920	960	913	More
13	Nagaland	931	944	929	More
14	Manipur	987	934	995	Less
15	Mizoram	975	971	976	Less

So, the required states/UTs are = Chandigarh, NCT of Delhi (Exactly 50%), Bihar, Sikkim, Arunachal Pradesh, Nagaland = 6 states/UTs.

Hence, option (a) is the correct answer.

Storyline of 5 to 8

Sales Value = Sales Volume × Average Price per unit

Total Market Size =

$$\frac{\text{Sales Value of Company X}}{\text{Market Share (in percentage) of company X}} \times 100$$

Further, Read the solution of 1.

Solution and Explanation for 5 to 8

5. Question is asking for size of domestic market (in ₹). Out of three different data sets given in the question (a pie chart, a line chart and a bar chart), we have Rupees value in only one data set – Bar chart. In pie chart and line chart, we do not have any information in Rupees Terms. So to answer any question in Rupees terms, we need to use Chart 3 - Bar chart.

How do we calculate the size of domestic watch market:

Chart 1 provides the market share in sales volume in 2010. Chart 2 provides the sales volume of Titan from 2008 to 2012.

Using chart 2, Sales volume of Titan in 2010 = 32 million units and using chart 3, average selling price = ₹900/watch. So, total market value for Titan in 2010 = 32 million units × ₹900/watch = ₹X (Assume) [we are not required to calculate this value as question is ONLY asking for the possibility of market size calculation].

Now, using chart 1, market share of Titan is known = 38% = ₹X. Using this, we can calculate 100% = Total Market Size of domestic watch market.

Hence it is possible to calculate only for the year 2010. We do not have Average Selling Price of Titan for year other than 2010. So we cannot calculate the domestic market size for any year other than 2010.

Since we have data of sales value and average selling price of all companies of year 2010 only, therefore we can calculate the size of domestic watch market for year 2010 only in the following manner:

Let ₹ N be the total sales value of all companies in 2010.

For Titan:

$$\text{Average Selling Price} = \frac{\text{Sales value}}{\text{No. of watches sold}}$$

$$600 = \frac{38\% \text{ of N}}{32 \text{ million}}$$

$$N = \frac{600 \times 32 \times 10^6}{38\%} = ₹5052 \times 10^7$$

Hence, option (b) is the correct answer.

6. We can find our require answer by calculating total sales for each company which is given as Average Price × Percentage of sales. We should focus on HMT, Rolex & Citizen only. As HMT has the lowest sales volume & lowest average price too. So, total sales (in ₹) must be the lowest for HMT. If we multiply the Average Price & Percentage of sales for Rolex & Citizen, we will conclude that sales (in ₹) for Rolex is lower than Citizen. So, Rolex has 2nd lowest sales (in ₹).

Hence, option (b) is the correct answer.

7. Now this is a no-brainer. You just have to calculate the percentage growth in the number of units sold of Titan.

2012 saw the minimum growth rate = 4.6%.

Hence, option (d) is the correct answer.

8. Using the data from other questions,

So, total market value for Titan in 2010 = 32 million units × ₹600/watch = ₹19200 million

Titan has a market share of 38% in 2010.

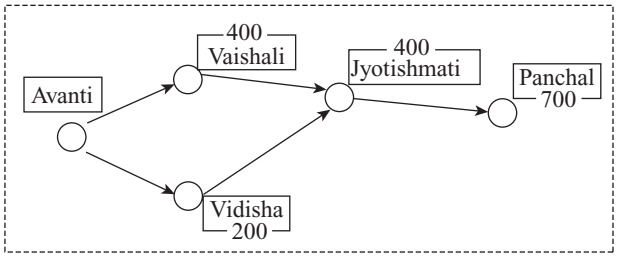
Hence 38% = ₹19200 million

⇒100% = ₹5052 crores.

Hence, option (b) is the correct answer.

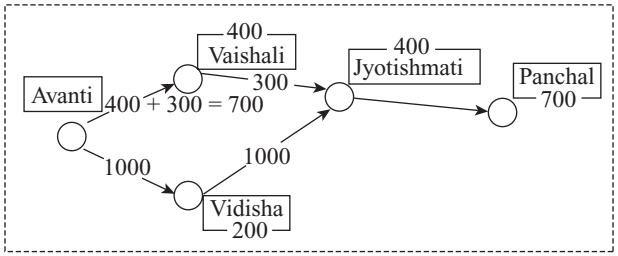
Solution and Explanation for 9 to 11

Following is the requirements at different cities:



Total requirement of Jyotishmati + Panchal = 700 + 400 = 1100. Out of this, 300 comes through Vaishali – Jyotishmati pipeline. So remaining 800 shall come through Vidisha – Jyotishmati pipeline. Now, requirement at Vidisha = 200. Hence Avanti Vidisha pipeline shall carry 200 (Requirement at Vidisha) + 800 (to be sent further to Jyotishmati) = 1000

So, this is the final situation:



Now all the questions can be answered.

9. Each pipeline can carry a maximum of 1000. Since Avanti-Vidisha pipeline carries 1000, free capacity in Avanti-Vidisha is zero.

Hence, option (d) is the correct answer.

10. Total free capacity at Avanti-Vaishali pipeline is 300. Capacity of each pipeline is 1000 and demand at Vidisha is 400 and 300 flows to Jyotishamti.

So, free capacity = {1000 – (400 + 300)}= 300.

Hence, option (d) is the correct answer.

11. Quantity flowed from Avanti to Vidisha = 200 + 100 + 700 = 1000.

Hence, option (d) is the correct answer.

EXERCISE 6

Storyline of 1 to 3

This set is the combination of Reading Comprehension and Data Interpretation skills. One is supposed to find out the meaningful data within the passage mentioned.

Solution and Explanation for 1 to 3

1. Only "Rising ATF prices" and "Reduced passenger Load" have been mentioned as the reasons for Jet Airways not doing well. Airlines has asked its employees to raise the service bar—but using this statement, this cannot be assumed that service standards is low. Staff travelling to Dubai has been mentioned in case of Air India.

Hence, option (a) is the correct answer.

2. Total loss for the airlines industry = ₹10,000 crores

Loss of Jet Airlines = ₹3,000

Loss to Air India = ₹10 crores × 365 days = ₹3650 crores (Air India's daily loss is mentioned in the 2nd line of 2nd para).

Hence total loss to all the other airlines = (₹10,000 – ₹3000 – ₹3650) crores = ₹3350 crores.

Hence, option (b) is the correct answer.

3. Nothing can be said for sure regarding the revenue of Airlines. Reducing the fare may improve the passenger load, but nothing can be ascertained if this will increase the net revenue or not?

Hence, option (b) is the correct answer.

Option (d) cannot be the answer because It does not matter is too casual a remark in this context. In fact "It matters to reduce the fare".

Storyline of 4 to 7

Table presents the farm data for the years 2000 to 2004. Right hand side of the table has the index for input use taking base year as 1992. In the base year 1992, index = 100. To solve the question set given ahead, you need not get into the technicalities of the question, be focused towards what is asked.

Solution and Explanations for 4 to 7

4. Average of farm labor indices

$= \frac{102+106+100+96+96}{5} = 100.$ And so on.

Similarly average indices for other can also be calculated.

Hence, option (c) is the correct answer.

5. In 2000, migrant hired workers =178.5(20% of 892)

In 2001, migrant hired workers =227.5(25% of 910)

So, % rise $= \frac{227.5-178.4}{178.4} \times 100 = 27.5\%$

Note from Author: I would suggest you to use approximation techniques instead of actual calculation. It can be clearly seen that there is increase in the number of migrant hired workers in the year 2001 over the year 2000, hence options (a) and (c) are eliminated.

Now take down the approximated values:

In 2000, migrant hired workers =178.5(20% of 892) = 180 (Approximately)

In 2001, migrant hired workers =227.5(25% of 910) = 230 (Approximately)

So, increase = 50 (Approximate). Since our base (or denominator) is the value of 2000 = 180, hence it can be clearly seen that 50 is above 20% and less than 30% of 180. Hence we eliminate option (b) as the answer. We are not left out with option (d) only.

Hence, option (d) is the correct answer.

6. In 2001-2003:

Total hired workers = 910 + 866 + 857 = 2633 thousand

Total self-employed workers =1968 + 1944 + 1942 = 5854 thousand.

Required ratio = $\frac{2633}{5854}$

We'll again use the approximation techniques to get down to the answer.

Obviously, the ratio $\frac{2633}{5854}$ is less than 1. Hence options (c) and (d) are eliminated.

Further, 50% of 5854 = 2900 (Approximately). Numerator is less than this. So ratio would be less than 0.5. There is only one option fitting the criteria–option (b).

Hence, option (b) is the correct answer.

7. (I) is not correct because maximum agricultural chemical was used in 2003 where the index is 106. Even (II) is not correct.

Hence, option (d) is the correct answer.

Solution and Explanations to 8 to 10

8. In the category 3 to 5 children, there are 275 members who have gone to Goa. We are not sure about the 225 members who have gone to Kashmir that if they are different than the members who have gone to Goa. So for these 225 families going to Kashmir, we are not sure about the extent of overlapping with the families going to Goa.It might be a possibility that these 225 members who have gone to Kashmir have also gone to Goa. Hence minimum number of members who have gone to at least one of the destinations = 275.

Hence, option (b) is the correct answer.

9. Taking a cue from solution to 8, following numbers are to be added:

Number of members who went to	
Goa	Kashmir
80	60
275	225
20	30

Answer to this question would be = 80 + 275 + 30 = 385.

Hence, option (a) is the correct answer.

10. We are not sure of the members in the category '3 to 5 children' or 'more than 5 children' that any of these members have NOT gone to any of the destinations. Although we are sure of the fact that in the category 'Less than 3 children', there are at least 150 – (80 + 60) = 10 members who have not gone to any of the destinations.

Hence, option (b) is the correct answer.

Exercise 7

Storyline of 1 to 4

Barchart provides the population density of the census years—though data for some of the years is missing. To find out the missing values in the bar chart, table provides the absolute increase in the census year with respect to the previous census year. For example, census year of 1941 = 13 more from the population density of 1931 = 90 + 13 = 103.

Solution and Explanation for 1 to 4

1. It can be seen that density has increased in all the census years over the previous year except (a) in 1921 (b) in 2011 – we do not have information. Hence population density for 2011 = E is not known to us.

   So final answer is - cannot be determined.

   Hence, option (d) is the correct answer.

2. Given that population density in 1991 = 267

   So population density of 2001 = 267 + 58 = 325. To calculate the population density of 2011, we have been given the clue in terms of percentage increase over 2001 population density.

   Population density of 2011 = Population density of 2001 + increase of 17.5% over this = 325 + 17.5% of 325

   $17.5\% = 20\% - 2.5\% = \frac{1}{5} - \frac{1}{40}$

   $\frac{1}{5}$ of 325 = 65 and $\frac{1}{40}$ of 325 = 8 (approximately)

   So, 17.5% = 65 – 8 = 57

   Hence population density of 2011 = 325 + 57 = 382.

   Hence, option (b) is the correct answer.

3. Following table gives the population density and percentage change:

Census year	Density (per sq.km)	% age Change
1901	77	
1911	82	6.5
1921	81	-1.2
1931	90	11.1
1941	103	14.4
1951	117	13.6
1961	142	21.4
1971	177	24.6
1981	216	22
1991	267	23.6
2001	325	21.7

   Second largest percentage increase occurs in 1991.

   Hence, option (d) is the correct answer.

4. **Method 1: Using approximation**

   Since the population density is constantly on a rise, average would be accounted for by the years that lie midway—1951 or 1961 or 1971. Census year 1951 can be easily ruled out as population density in this year is too low. So either census year 1961 or 1971 will be the answer. Since 1971 is not in the options, hence 1961 is the answer.

   Method 2: Using the actual calculation

   Using the table drawn to solve 3, average population density of all the census years from 1901 to 2001 = 152. This is closest to the population density of the census year 1961.

   Hence, option (b) is the correct answer.

5. 45% of the engines in India are powered by Natural gas and Diesel. So, the balance 55% will be powered by electricity. We know that 2100 engines are powered by diesel which accounts for 35% of the total engines. Therefore, 55% of the total engines

   $= \frac{2100}{35} \times 55 = 3300.$

   Hence, option (a) is the correct answer.

6. We can find out the total number of engines in the world with the information available. But we do not know the makeup of the engines of the world in terms of their being powered by different modes. Hence cannot be determined.

   Hence, option (d) is the correct answer.

7. Average % of engines powered by electricity = (Number of engines powered by electricity/Total number of engines) × 100

   $= \frac{1134000}{21625} \times 100 = 52.4\%.$

   Hence, option (a) is the correct answer.

Storyline of 8 to 11

Best way to go through this set of questions is to take the questions on its face value without understanding the meanings attached to the terms (though they are self descriptive in nature, and one is not required to scratch one's head to make meaning out of it).

Solution and Explanations for 8 to 11

8. The least occurs in case of 7.56% GS 2014 which is more than 5 years. Hence answer is – all the years.

   Hence, option (d) is the correct answer.

9. For 4 stocks, the desired yield is more than cut off yield.

   Hence, option (b) is the correct answer.

10. Following stocks are having their cut-off price more than ₹100:

Name of Stock	Cut off price
7.56% GS 2014	103.47
7.94% GS 2021	102.5
7.56% GS 2014	106.75
8.24% GS 2027	107.82

None of these stocks have their cut-off yield more than its desired yield.

Hence, option (a) is the correct answer.

11. To obtain a minimum desired yield of 8%, Mr Robert has to take 8.24% GS, as for remaining all the stocks, minimum desired yield is 8%. (One cannot have above 8% yield by mixing two stocks with less than 7% stock. It means that one stock has to be higher than 8 % and other has to be less than 8%).

He can mix 8.24% GS with any one of the remaining 6 stocks to obtain minimum 8% desired yield.

Hence, option (b) is the correct answer.

Exercise 8

1 to 4

From the given information the following table can be prepared:

	Physics	Chemistry	Maths	English	Total
Amit	80	70	60	80	290
Binit	60	60	60	60	240
Charu	40	50	60	70	220
Dilip	90	80	70	60	300

Storyline of 5 to 8

Question provides two sets of data – Overs and Runs scored. While Total scheduled Overs is fixed at 50, Overs actually played vary for all the three matches. Runs scored have been given in three parts - Runs Scored by 1st Five Players, Runs Scored by remaining Last Six Players and Extra Runs. Summation of these three components gives total runs. Further, Average runs per over has been defined.

5 to 8

5. Clearly it can be seen that runs scored in the first match is much more than the total runs scored in either second match or thi match. Though number of Overs actually played is almost similar in all the three matches – 45 Overs in first match, 48 Overs in second match and 44 Overs in third match.

Since numerator (Total runs scored) is maximum in case of 1st match whereas denominator is almost similar, Average runs per over will be maximum for first match.

Hence, option (a) is the correct answer.

6. Total number of overs actually played in third match = 44 overs

Total number of Runs scored in third match = 80 + 70 + 17 = 167 runs

Method 1 – Through actual calculation method

Average Runs per over in third match = $\frac{167}{44}$ = 3.8 runs per over

Total runs in 50 overs = 50 × 3.8 = 190 runs

Method 2 – Through Approximation method

44 overs $\xrightarrow{\text{Percentage Increase of 12\%–13\%}}$ 50 overs

Hence runs scored will also increase by 12% - 13%. Now we will not go through the actual calculation. A quick look at the options shows that options are not close, so we can have a good approximation.

Instead of increasing 167 runs (scored in 44 overs) by 12% – 13%, we increase it by ONLY 10% to find a quick range of our answer.

167 $\xrightarrow{\text{Percentage Increase of 10\%}}$ 167 + 16.7 ≡ 184. Our actual answer will be a bit more than this. Option (b) is the closest one.

Hence, option (b) is the correct answer.

7. Evaluating the observations one by one:

Observation I – Understand that you don't have to use your "Cricket" knowledge to answer this question. Taking the data on its face value, it can be clearly seen that Performance of 1st five players has improved whereas performance of last six players has gone down. Hence observation I is correct.

Observation ii – This is a close call. So let us go through the actual calculation.

Percentage decrease in case of Match 1 = $\frac{22}{227}\times 100$ = 9.69%

Percentage decrease in case of Match 2 = $\frac{18}{165}\times 100$ = 10.9%

Percentage decrease in case of Match 3 = $\frac{17}{167}\times 100$ = 10.17%

So, maximum percentage decrease occurs in case of Match 3. Hence Observation (ii) is wrong.

Observation iii – Since the average runs per over is maximum in Match 1 (using answer to 5), hence runs scored in 50 Overs would have been maximum in match 1.So observation iii is true.

So, only observations I and iii are correct.

Hence, option (c) is the correct answer.

8. This is simple calculation – similar to 5.

Option (a) can be easily eliminated as this has the maximum runs scored. Though to decide between match 2 and match 3, we are required to calculate the actual value.

Average Runs per Over for Match 2 = 3.06 runs per over and average runs per over for match 3 = 3.40 runs per over. Hence match 2 is the answer.

Hence, option (b) is the correct answer.

9. The maximum number of people who watch all movies can be obtained by adding the minimum value of each age group from all movies. As the 4th bar shows people who watched only that movie. So, they would not watch all movies. For each age group, the maximum possible number of people who watched all movies is the minimum value it has among all 4 movies. For example, for people 760 years of age, the maximum number of people who can watch all 4 movies is 30, which shows people >60 years of age who watched Casino Royale, as it is possible those 30 also watched other 3 movies.

So, for age group >60 year = 30

For age group 30–60 = 50

For age group <30 = 60

It adds to 30 + 50 + 60 = 140.

But, we must also consider for each movie, the number of people who watched only that movie must be less than the number obtained by adding the people for each age group & then substracting the number of people who watched all 4 movies.

For movie, the man with the golden gun: (50 + 110 + 70) – 140 = 90. But, the people who watched only this movie is 100. So, the number of people who watched all 4 movies must be equal or smaller to 130.

For movie, Casino Royale: (30 + 60 + 110) – 140 = 60. But, the number of people who watched only this movie is 40. So, 140 is possible value.

For movie, Goldfinger: (40 + 50 + 60) – 140 = 10. But, the number of people who watched only this movie is 30. So, 120 can be the maximum value of people who watched all 4 movies.

For movie, Tomorrow never dies: (30 + 70 + 70) – 140 = 30. The number of people who watched only this movie is 20. So, here 140 is possible value for people who watched all 4 movies.

So, the maximum number of people who watched all 4 movies is 120.

Hence, option (d) is the correct answer.

10. For maximum number of people of age group >60 year, we must assume that no person watches more than 1 movie. So, if the value of bar showing this age group is less than 4th bar (showing people who watched only that movie), we can use full value of that bar. But if it is not so, we must use value of 4th bar.

So, maximum possible number of people of >60 age who attended the festival

= 50 + 30 + 30 + 20

= 130

Hence, option (d) is the correct answer.

EXERCISE 9

Storyline of 1 to 4

Pie charts given in the question present two different data for seven regions namely A1 to A7. Left hand piechart presents the population distribution of wild animals in seven regions whereas right hand pie chart presents the land under forest cover distribution in seven regions.

Population density = $\frac{\text{Percentage Number of Animals}}{\text{Percentage Land Area Under Forest Cover}}$

1 to 4

1. This is a straight forward question. We need to add the percentage of animals and divide it by summation of percentage of land area under forest cover.

Required population density = $\frac{20+15}{22+18} = 0.88$.

Hence, option (c) is the correct answer.

2. If the question would have asked us 'maximum' or 'minimum', we could have solved it through process of elimination. Since question asks us to evaluate "fourth highest population density", it is better that we calculate the density for each of the regions and identify the fourth highest.

The population densities of the areas are:

A1 = 1.266 A2 = 0.928

A3 = 0.909 A4 = 1.375

A5 = 1 A6 = 0.833

A7 = 0.89

Alternatively, we can use some guesstimation skills to shorten the calculation process:

Three regions – namely A1, A4 and A5 are clearly greater than or equal to 1. So, fourth highest is a value closest AND lower than 1.

Hence, option (d) is the correct answer.

3. This is simple calculation.

Population density of Russia = 1 while population density of Europe = 1.375.

Hence, option (a) is the correct answer.

4. As the increase in the population of the rest of the world is not known, we cannot determine the increase in Antarctica's wild life population.

Hence, option (d) is the correct answer.

5 to 9

Number of Chocolates eaten by all of them is following:

Name	Deepak	Sonu	Manoj	Naveen	Mak	Julie	Hemant	Mohit	Kajal	Prince
No.	2	4	8	10	1	6	3	7	9	5

5. Number of chocolates eaten by Mohit = 7.

Hence, option (b) is the correct answer.

6. Number of chocolates eaten by Kajal = 9 and number of chocolates eaten by Prince = 5. Hence number of chocolates eaten by Kajal as a percentage of the number of chocolates eaten by Prince = $\frac{9}{5}\times 100 = 180\%$.

Hence, option (d) is the correct answer.

7. As given in the above table, it can be calculated for all of them.

Hence, option (a) is the correct answer.

8. It can be seen that only option (a) is true.

9. Number of chocolate's eaten by Sonu and Manoj together = 12, which is equal to the number calculated in options (a), (b) and (c).

Hence, option (d) is the correct answer.

10. Husband's age = 52 years and wife's age = 39 years. Hence difference in between their ages = 13 years.

Hence, option (b) is the correct answer.

Exercise 10

1 to 5

1. In case of products, percentage of spam e-mails is increasing but at decreasing rate, from Sep 2002 to Dec 2002 products increased by [(7 – 3)/ 3] × 100 = 133.33% and in march 2003 about [(7 – 4)/7] × 100 = 43% and in June 2003, [(11 – 10)/10] × 100 = 10%.

Hence, option (c) is the correct answer.

2. Since percentage of spam in Dec 2002 is higher than June 2003, and the number of total e-mails received is higher, hence cannot be determined.

Hence, option (d) is the correct answer.

3. In September 2002, percentage is higher as compared to March 2003, however, the total number of emails recieved in sept 2002 is higher than that in March 2003.

Hence, option (a) is the correct answer.

4. Profitability is defined as percentage of sales. Approximately Firm A has 25% profit, B has 16.66%, C has 20% and D has approximately 30% profit.

Hence, option (d) is the correct answer.

5. If firm A acquires firm B, then their combined sale is 24568 + 25468 = ₹50,036. The total sale (in ₹) of industry is ₹89,570.

So, the market share will be $\frac{50036}{89570}\times 100\% = 55\%$.

Hence, option (a) is the correct answer.

6 to 8

Following is the grid:

x	0	1	2	3	4	5	6	7	8	9
y	3	4	5	6	7	8	9	10	11	12
z	9	13	17	21	25	29	33	37	41	45
A	72	144	240	360	504	672	864	1080	1320	1584

6. x + y =120. Summation of all Z = 270. The required difference = 270 – 120 = 150.

Hence, option (b) is the correct answer.

7. When the cumulative value of z becomes 85, A = 504.

Hence, option (d) is the correct answer.

8. When A = 672, z = 29, y = 8 & x = 5. Hence, 29 – (8 + 5) = 16.

Hence, option (c) is the correct answer.

9 and 10

If D gets portfolio F does not and vice-versa.
C wants only Home or Finance or none.
If D gets Power B must get Telecom or D- Telecom then B must get Power
If A gets a portfolio E should get.

9. Go through options:

(a) is eliminated because C can have either home or finance.

(c) is eliminated because F and D cannot be in the same team

(d) is eliminated because C cannot have telecom portfolio

Hence, option (b) is the correct answer.

10. B-Defence, D-Telecom because if D gets Telecom then B must get power.

Hence, option (d) is the correct answer.

Exercise 11

1 to 3

1. Paint AVOCADO is made by mixing ORANGE and PINK in equal quantities.

If ORANGE is made using RED and YELLOW, then the cost of ORANGE would be (20 + 25)/2 = 22.5 which is greater than the cost of the ORANGE.

If we make PINK by RED and WHITE, the cost of PINK would be (20 + 15)/2 = 17.5 and it is less than the cost of the PINK paint.

Hence, the cost of the paint AVOCADO is (22 + 17.5)/2 = 19.75

Hence, option (b) is the correct answer.

2. The ratio of RED, YELLOW and WHITE is 1:1:2.

Hence, option (d) is the correct answer.

3. If cost of AVOCADO paint is ₹19.75. The cost of the CREAM is (7 × 15 + 3 × 75)/10 = ₹18

And cost of WASHERDORANGE is ₹18.50. Hence CREAM is most profitable.

Hence, option (b) is the correct answer.

4 to 6

Let us 1st tabulate the given data:

1	2	3	4	5	6	7
C			B	D	A	G
D			B	C	A	G
D			B	C	G	A
D			B	C	G	A

4. From the given options F is the only possibility.

Hence, option (c) is the correct answer.

5. Looking at the options, D and G can sit together, C and F can sit together, B and D can sit together and E and A is the only option which is not possible.

Hence, option (d) is the correct answer.

6. E and G is the only possibility.

7 to 8

G = A – 8 (1)
O + R = 37 (2)
J = D + 8 (3)
A = D + 5 (4)
A + G = 40 (5)

So, Adding (1) & (4) & equaling to (5)
= (A – 8) + (D + 5) = 40
Using (4) we get
(D + 5 – 5) + (D + 5) = 40
D = 19
So, A = 24, J = 27, G = 16 & R = 18

9 and 10

	C1	C2	Supply
Profit	3600	5400	
Doors	4	2	20000
Labor	6	10.5	48000
Demand	unlimited	3500	

Maximize $3600x_1 + 5400x_2$

$4x_1 + 2x_2 \le 20000$

$6x_1 + 10.5x_2 \le 48000$

$x_2 \le 3500$

9. C1 = 3800, C2 = 2400.

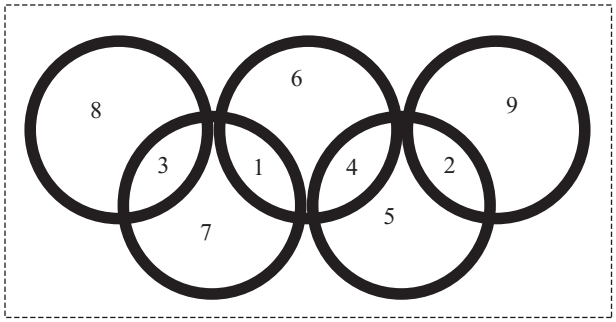
Hence, option (a) is the correct answer.

10. Since there is still unfulfilled demand of C2, hence advt. campaign should not be run.

Hence, option (b) is the correct answer.

11 and 12

Following is the diagram:



11. Sum of numbers in each of the circles = 11.

Hence, option (b) is the correct answer.

12. N = 9.

Hence, option (a) is the correct answer.