

Section – III

Directions for questions 111 to 115: The following table provide information about the break-up of number of employees of BOC Ltd. in various categories as of 31st March, 2004.

**Human Resource in BOC Ltd.
Number of employees as on 31st March, 2004**

Employee category	Age Distribution				Total (Numbers)
	< 31	31-40	41-50	51-60	
(A) Technical					
Executive	484	3413	10703	4180	18780
Non-Executive	407	2684	3494	550	7135
Total (A)	891	6097	14197	4730	25915
(B) Non-Technical					
Executive	232	470	2442	1382	4526
Non-Executive	399	1743	3519	1931	7592
Total (B)	631	2213	5961	3313	12118
Grand Total (A + B)	1522	8310	20158	8043	38033

The table below provides data on the sales value for each employee category (in Rs. million) for BOC Ltd. as of 31st March, 2004.

Sales value as on 31st March, 2004

Employee category	Age Distribution				Total (Rs. In million)
	< 31	31-40	41-50	51-60	
(A) Technical					
Executive	5912.6	36826.7	85787.4	14621.1	143147.8
Non-Executive	2990.2	17537.4	19035.5	1301.8	40864.9
Total (A)	8902.8	54364.1	104822.9	15922.9	184012.7
(B) Non-Technical					
Executive	2755.5	4967.3	17712.7	4689.9	30125.4
Non-Executive	2747.3	10514.3	16605.6	3776.8	33644.0
Total (B)	5502.8	15481.6	34318.3	8466.7	63769.4
Grand Total (A + B)	14405.6	69845.7	139141.2	24389.6	247782.1

Value per employee is defined as the ratio of sales value for the employee category and the number of employees for that category.

111. Which employee category had the highest value per employee, across all age groups?
- Technical, executive
 - Technical, non-executive
 - Non-technical, executive
 - None-technical, non-executive.

117. On how many record dates was the sum of NAV and dividend per unit of Premium Plan greater than Rs. 10.90 per unit?
 a. 2 b. 3 c. 4 d. None of these
118. On how many record dates was the difference between NAV and dividend per unit of Premium Plus Plan less than Rs. 10.80 per unit?
 a. 2 b. 3 c. 4 d. None of these

Additional directions for questions 4 and 5: It makes a good investment strategy if a unit is purchased at low NAV and sold at a high NAV. It is assumed that any number of units (from any of the three plans) can be sold or purchased on any record date. It is also assumed that there are only these three mutual fund plans which are available in the market.

119. If Arun invests in one of these three plans on August 01, 2003 and wants to get maximum profit by selling off all the units on January 01, 2004. Which plan should he opt for?
 a. Short Term Plan b. Premium Plan c. Premium Plus Plan d. Either (a) or (c)
120. On how many record dates were there a gain in NAV over the immediately preceding record date in Premium Plan?
 a. 12 b. 14 c. 16 d. None of these

Directions for questions 121 to 123: The tables given below are part of the car rental tariff card for the Dial-A-Tour car rental agency in 2004. The tariff card is used along with the terms and conditions given along it. The base column in the tariff card indicates the base time (in hrs) and base distance (in km) for which the vehicle is rented out. For example, 4 hrs 40 km indicates that the car is rented out for use for a maximum time of 4 hrs and a maximum distance of 40 kms. If it is used beyond 4 hrs or 40 km or both, extra rates apply.

Car Rental Tariff

All Rates mentioned in the tables are in INDIAN RUPEES

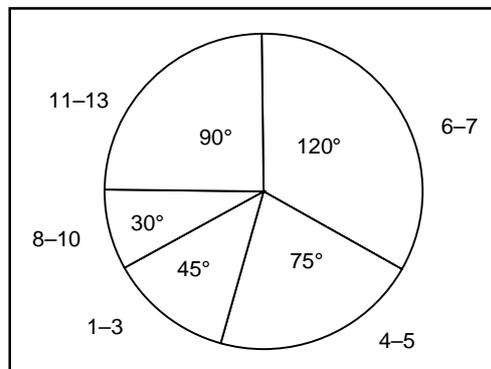
Base	Non A/C (Ambassador / Maruti van)	Ambassador A/C	Fiat Uno / Wagon.R Indica (A/C)	Maruti Esteem (A/C)	Cielo / Ikon / Hyundai Accent / Indigo (A/C)
2 hrs 20 km	250.00	—	—	—	—
4 hrs 40 km	375.00	475.00	475.00	600.00	750.00
8 hrs 80 km	625.00	850.00	850.00	1200.00	1450.00
Extra km	5.50	8.50	8.50	12.00	14.00
Extra hrs	40.00	60.00	60.00	85.00	100.00

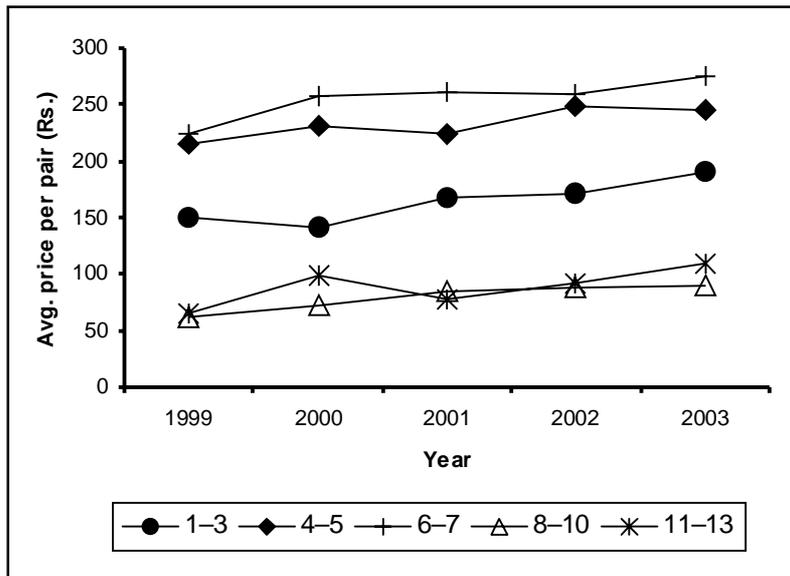
Base	Tata Sumo Non /A/C	Tata Sumo A/C	Totota Qualis Non A/C	Toyota Qualis A/C
4 hrs 40 km	475.00	575.00	650.00	750.00
8 hrs 80 km	925.00	1150.00	1250.00	1400.00
Extra km	6.50	8.50	8.50	9.50
Extra hrs	65.00	90.00	90.00	125.00

Terms and conditions:

1. For outstation, minimum distance per Calendar day is 250 km. Also outstation charges of Rs. 200 per Calendar day apply.
 2. Parking charges and interstate permit extra.
 3. Opening km and timing starts from our office and closes at our office.
 4. Billing will be based on tariff card and extra km and hours will be added to the base rate.
121. A Toyota Qualis (A/C), a Maruti Esteem (A/C) an Indigo (A/C) were hired by three different people for 8 hrs 80 kms. All three ended up using the cars for 10 hrs and a distance of 122 kms. Which of the three, incurred the least expense?
- a. Toyota Qualis (A/C)
 - b. Maruti Esteem (A/C)
 - c. Indigo (A/C)
 - d. Either (b) or (c)
122. If extra tariff ($=10 \times \text{Extra km rate} + \text{Extra hour rate}$), is calculated for all models, which car model has the second lowest extra tariff?
- a. Ambassador / Maruti Van (Non-A/C)
 - b. Tata Sumo (Non-A/C)
 - c. Ambassador / Fiat Uno / Wagon R / Indica (A/C).
 - d. None of these
123. Which car model is best to be hired for outstation trip, amongst those given in the table?
- a. Ambassador / Maruti Van (Non-A/C)
 - b. Tata Sumo (Non-A/C)
 - c. Ambassador / Fiat Uno / Wagon R / Indica (A/C).
 - d. Data insufficient

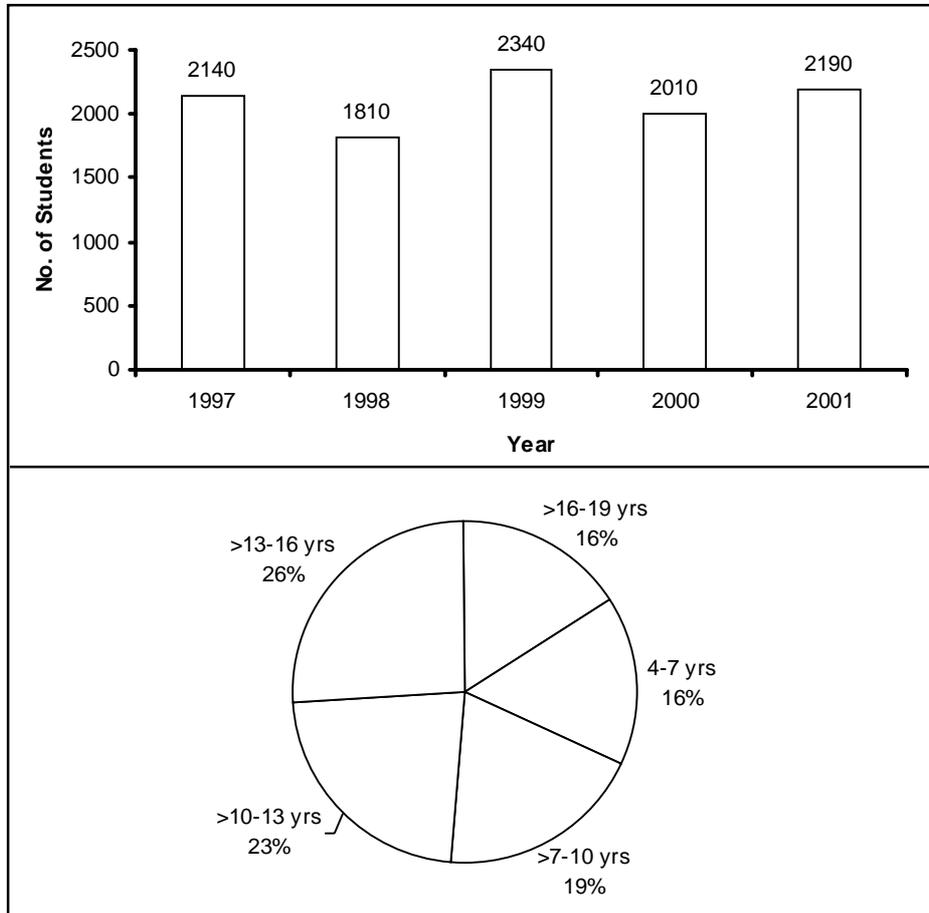
Directions for questions 124 to 127: The following data gives information on the shoes sold by a shoe factory. The line chart shows the average price per pair of different types of shoes for each shoe size band for the period 1999 to 2003. The pie chart shows the break-up of volume (in number of pairs) of shoes of each size band sold by the same shoe factory in 2001. The average price per pair of different types of shoes for each shoe size band is given by the weighted average price of each type of shoe, weighted by its sales volume.





124. Which shoe size band had the highest sales value for the given shoe factory in 2001?
- a. 1-3
b. 4-5
c. 6-7
d. Data insufficient
125. What is the average annual percentage increase in average price per pair of shoe in the size band 6-7 during the period 1999 to 2003 for the given shoe factory?
- a. 1.11%
b. 5.55%
c. 8.33%
d. 9.09%
126. What is the ratio of sales value of shoe size band 6-7 to that of shoe size band 11-13 for the year 2001 for the given shoe factory?
- a. 4 : 5
b. 7 : 3
c. 9 : 2
d. Data insufficient
127. Which shoe size band and in which year had the steepest percentage change in the average price per pair over the previous year during the period 1999 to 2003 for the given shoe factory?
- a. 11-13, 2002
b. 1-3, 2001
c. 8-10, 2001
d. 11-13, 2000

Directions for questions 132 to 135: Answer the questions based on the following information. The following chart shows the total number of students in Indian Public School from 1997 to 2001. The age-wise distribution of students in 1999 is shown in the pie chart.



132. What is the percentage of students in the 4–7 years range over the total number students in Indian Public School in 2000, if the number of students in that group is 50 more than that in 1999?
a. 18.6% b. 19.5% c. 20.7% d. None of these
133. What is the difference in number of students of of Indian Public School in 1999 as compared to 2001 in 13–16 years group?
a. 39 b. 49 c. 59 d. Data insufficient
134. If an increase of 10% happens for all groups ranging from 4 to 13 years in 2000 over 1999, what is the number of students in the age group of 13-19 yrs in 2000?
a. 305 b. 421 c. 517 d. Data insufficient
135. What is the average number of students per year across all age groups in Indian Public School from 1997 to 2001?
a. 2094 b. 2096 c. 2097 d. 2098

Directions for questions 136 and 137: Answer the questions based on the following information.

In a class, there are 6 boys and 6 girls. 1 boy has 3 girlfriends, 2 boys have 2 girlfriends each and 3 boys have 1 girlfriend each. If every girl has a boyfriend.

136. Which of the following is possible?
- One girl has six boyfriends.
 - Two girls have three boy friends each and another girl has two boyfriends.
 - Four girls have two boyfriends each.
 - None of these.
137. Which of the following is not possible?
- One girl has five boyfriends.
 - Two girls can have three boy friends in common.
 - Only three girls have two boy friends each.
 - None of these

Directions for questions 138 to 140: Answer the questions based on the following information.

A, B, C, and D are four siblings of different genders — two males (M) and two females (F). It is known that B is younger to A, D is younger to C and D is a female.

138. The gender of A can be determined if the siblings in the decreasing order of their ages are
- MMFF
 - MFFM
 - FMFM
 - FMMF
139. The gender of B cannot be determined if the siblings in the decreasing order of their ages are
- MFMF
 - MFFM
 - FMFM
 - FMMF
140. The gender of C can be determined if the siblings in the decreasing order of their ages are
- MFFM
 - FFMM
 - FMFM
 - FMMF

Directions for questions 141 to 143: Answer the questions based on the following information.

A boss can do a job in two days if his four secretaries A, B, C and D are all present. His efficiency got

reduced to $\frac{1}{6}, \frac{1}{4}, \frac{1}{3}, \frac{1}{2}$ respectively according as A, B, C and D remain absent. In any day only one secretary remains absent. Also the boss finishes his work exactly in integral number of days.

141. Which of following secretaries cannot be absent for an odd number of days?
- A
 - B
 - C
 - D
142. If each secretary remained absent for at least one day, then in how many days will the boss finish the work?
- 5, 6 or 7 days
 - 6, 7 or 8 days
 - 6, 8 or 9 days
 - 7, 8 or 9 days

143. If the boss finished his work in 6 days with one secretary being present everyday, then the secretary was
- a. A b. B c. C d. Cannot be determined.

Directions for questions 144 to 146: Answer the questions based on the following information. A, B,C and D are four children playing a game of passing a ball to one another, the child receiving the ball does not pass it immediately to the one from whom he gets it. If during the game A, B and C held the ball 3, 5 and 7 times respectively, if C started the game and the first/last holding of the ball also counts, then answer the questions given below.

144. The minimum number of times D held the ball would have been
- a. 1 b. 2 c. 3 d. 4
145. The minimum number of times D held the ball, given that he held the ball in the last, would have been
- a. 3 b. 4 c. 5 d. 6
146. The maximum number of times D held the ball would have been
- a. 6 b. 7 c. 8 d. 9

Directions for questions 147 to 150: Answer the questions based on the following information. A, B, C, D and E are five students only who appeared in a test of total marks 100 study the following observations:

- I. If E had got 30 marks more, he would have got marks equal to that of the topper.
- II. If D had got 20 marks more, he would have got marks equal to that of the second topper.
- III. If C had got 20 marks less, he would have got marks equal to that of the student getting the least marks.
- IV. If A had got 30 marks less, he would have got marks equal to that of the student getting the least mark.

Now answer the following questions:

147. The topper must be
- a. A b. B c. A or C d. A, B or C
148. The student who got the least marks must be
- a. E b. D c. E or D d. E, D or A
149. The second topper must be
- a. B b. C c. B or C d. B, C or A
150. The student who got the fourth rank must be
- a. D b. E c. D or E d. D, E or C

Directions for questions 151 to 153: Read the following arguments and answer the questions that follow:

Knowing a mathematical truth requires that one be able to give an appropriate kind of justification: one must be able to prove it, say, or have learnt it from someone of whom one can reasonably suppose that he is able to prove it. Similarly, knowing what time it is requires having looked at a working clock recently, or having heard the time signal on the radio, or having asked someone with a watch; and so on. And knowing moral truths is no different.

Moral judgment, no less than scientific or historical knowledge, depends on a particular kind of justification. I can therefore recognise the opinion of another person as the result of a moral judgment they have made — rather than as no more than a prejudice, or a mere expression of their feelings — even if I do not agree with them. This is one way in which morality is objective, despite the obvious fact that we don't all agree in our moral judgements.

Whatever morality we hold, the requirements we make of moral arguments would presumably include each of the following: Consistency, Disinterestedness and Forethought.

151. Which of the following, if true, casts a serious doubt on the conclusion on *Consistency* drawn above?
- Consistency includes applying one's moral values equally to oneself and to others, to one's friends and to one's enemies.
 - The declaration of human rights, like Thomas Jefferson's "All men are created equal ...," is rather limited in scope because it is not at all true in practice that everyone — women, for example, or non-Europeans, or the lower peasantry — is accorded equal respect.
 - Everyone's freedom matters in theory at least.
 - Middle-class society can now be challenged by those it suppressed according to its own logic, caught out in a performative contradiction between what it said and what it did.
152. Which of the following statements about *Disinterestedness* is best supported by the statements above?
- Disinterestedness is viewing actions '*sub specie aeternitatis*': looking at them 'from eternity,' as it were, not from one's present situation only, here and now.
 - Someone who has just had a member of their family murdered may not be capable of making a proper moral judgment about the death penalty, as their opinion may be affected by a desire for revenge.
 - Disinterestedness requires a person to be free from bias or partiality.
 - All of the above
153. Which of the following statements about *Forethought* is least supported by the statements above?
- Forethought requires one to view one's actions together with their foreseeable consequences.
 - When boys and girls start going out, boys benefit from the fact that the girls may want to be more deeply involved than the boys feel like being.
 - When boys and girls start going out, instead of taking advantage, boys ought to take into account that the girls may be more liable to be hurt.
 - None of the above

Directions for questions 154 and 155: The arguments as it is presented in the questions below would be most strengthened if which of the following choices would complete the sentence?

154. According to Jeremy Bentham's theory of Utilitarianism (from Lat. *utilitas*, usefulness, advantage,), our actions should maximize the balance of pleasure over pain, for which he devised scales to be able to compare them; and since a greater interest should not be given up for a smaller one, the morally right action is that which produces ...
- the greatest happiness of the greatest number.
 - the intensity of pleasures and pains.
 - a human being satisfied.
 - each action separately.
155. I esteem the man whose self-love, by whatever means, is so directed as to give him a concern for others, and render him serviceable to society; ...
- the notion of morals implies some sentiment common to all mankind, which recommends the same object to general approbation.
 - he must here depart from his private and particular situation, and must choose a point of view, common to himself with others.
 - virtue and vice become then known.
 - as I hate and despise him who has no regard to anything beyond his own gratifications and enjoyments.
156. Since our genes already determine, to some extent at least, our character, we cannot be fully responsible for some of our actions, as we are not for the inherited diseases we develop.

Which of the following, if true, would most strengthen the conclusion drawn in the passage above?

- Our social environment and learning influence our personality to a great extent.
 - Freedom can only be described negatively, i.e. we can argue that we were not unfree in certain respects, e.g. free from our parents' influence
 - Amongst certain conservative groups there has been a change in the attitude to homosexuality: if it was a (partly) genetic trait, as some recent evidence has suggested, then it should no longer be considered a sin (— even though homosexual behaviour might still be.)
 - None of the above
157. The way someone has been brought up and their experiences determine, to some extent at least, how they will behave.

Which of the following, if true, would provide the strongest evidence against the above?

- People often behave more violently if they come from the ghettos, so it cannot all be their fault.
- People are more often studious if they come from a certain kind of middle class family, so it cannot all be to their credit.
- All people have a hidden desire for money or status.
- (a) and (b)

158. There was a young man who said: "Damn!
It grieves me to think that I am
 Predestined to move
 In a circumscribed groove:
In fact, not a bus, but a tram."

We can infer from the above limerick that the writer expresses a position of

- a. Pessimism b. Volition c. Fatalism d. Monomania
159. While in the world there are only things and events, we can think of events only in terms of their descriptions, such as "a ball hitting the ground."
But certain events are capable of having essentially different descriptions: thus, the same event can be described as my arm moving upwards, or as my moving my arm up. The first is a physical description, the second a psychological one in terms of my intention or will.
Similarly, another event can be described as the pulling of a trigger, as the deliberate killing of someone I dislike, or as cold-blooded murder.

Which of the following conclusions regarding the parallel observation can be most properly drawn from the data above?

- a. The first is a psychological, the second a physical, and the third a moral description.
b. The first is a physical, the second a moral, and the third a psychological description.
c. The first is a psychological, the second a moral, and the third a physical description.
d. The first is a physical, the second a psychological, and the third a moral description.
160. It is because *homo homini lupus* ["man is as a wolf to man"], so that in the state of nature there is *bellum omnium contra omnes* ["war of all against all"] and the life of man is "solitary, poor, nasty, brutish, and short," that people must submit to the absolute supremacy of the state, the great Leviathan, which is pictured as like a human being, whose health is peace, and whose soul is the sovereign: he establishes morality, he creates the law.

Which of the following most accurately states a hidden assumption that the author must make in order to advance the argument above?

- a. Political philosophers are masters of the art of sophistry.
b. Everyone always acts out of self-interest; an action is called right just because it is in the interest of the agent.
c. Our actions are motivated by altruistic motives.
d. All of the above

Directions for questions 161 to 165: Each question consists of a question and two statements, I and II. Choose

- a. If one of the two statements (I or II) alone is sufficient to answer the question, but cannot be answered by using the other statement alone.
- b. If each statement alone is sufficient to answer the question asked.
- c. If I and II together are sufficient to answer the question but neither statement alone is sufficient.
- d. If even I and II together are not sufficient to answer the question.

161. Find the value of N, if N is a 2-digit number.
- I. N, when divided by 10 leaves a remainder 9.
 - II. N when divided by 9 leaves a remainder 7.
162. What are the three numbers ?
- I. The product of the three numbers is 24.
 - II. The sum of the three numbers is a prime number.
163. How many digits does the number 32^{32} have in terms of K_1 or K_2 ?
- I. $\log_{10} 2 = K_1$, where K_1 is a known number.
 - II. $\log_4 100 = K_2$, where K_2 is a known number.
164. What is the value of X, if X is an integer ?
- I. $X = \sqrt{9}$
 - II. $X^2 - 1 < 0$
165. Is ABCD a rhombus ?
- I. The four triangles enclosed by the diagonals and the sides have equal areas.
 - II. ABCD is a parallelogram in which a circle can be inscribed touching all the four sides.