

**Directions (Qs. 1 to 5):** Study the information given below to answer these questions.

- (i) Six plays A, B, C, D, E and F are to be organised from Monday to Saturday, i.e. from 5th to 10th — one play each day.
- (ii) There are two plays between C and D and one play between A and C.
- (iii) There is one play between F and E and E is to be organised before F.
- (iv) n is to be organised before A. not necessarily immediately.
- (v) The organisation does not start with B.

1. The organisation would start from which play?  
 [1] A                                      [2] F                                      [3] D                                      [4] Can't be determined
2. On which date the play E is to be organised?  
 [1] 5<sup>th</sup>                                      [2] 7<sup>th</sup>                                      [3] 6<sup>th</sup>                                      [4] Can't be determined
3. The organisation would end with which of the following plays?  
 [1] A                                      [2] D                                      [3] B                                      [4] Can't be determined
4. On which day the play B is organised?  
 [1] Tuesday                                      [2] Friday                                      [3] Thursday                                      [4] None of these
5. Which of the following is the correct sequence of organising plays?  
 [1] AECFBD                                      [2] DFECBA                                      [3] BDEKCA                                      [4] None of these

**Directions (Qs. 6 to 9):** Read the following Information carefully to answer these questions.

A family consists of six members P, Q, R, S, T and U. There are two married couples. Q is a doctor and is the father of T. U is the grandfather of R and is a contractor. S is the grandmother of T and is a housewife. There is one doctor, one contractor, one nurse, one housewife and two students in the family.

6. Who is the sister of T?  
 [1] R                                      [2] T  
 [3] U                                      [4] Information insufficient
7. What is the profession of P?  
 [1] Doctor                                      [2] Doctor or Nurse                                      [3] Nurse                                      [4] Housewife
8. Which of the following are the two married couples?  
 [1] US, QT                                      [2] TS, RU                                      [3] US, QP                                      [4] US, RP
9. Which of the following is definitely a group of male members?  
 [1] QU                                      [2] QUP                                      [3] QUT                                      [4] UT
10. If in a certain Language, TRIANGLE is coded SQHZMFKD, then which word would be coded as DWZLOKD?  
 [1] EXAMPLE                                      [2] DISMISS                                      [3] FIGMENT                                      [4] DISJOIN

11. Two buses start from the opposite points of a main road, 150 km apart. The first bus runs for 25 km, takes a right turn and then runs for 15 km. It then turns left, runs for another 25 km and takes the direction back to reach the main road. In the meantime, due to a minor breakdown, the other bus has run only 35 km along the main road. What would be the distance between the two buses at this point?  
[1] 65 km                      [2] 80 km                      [3] 75 km                      [4] 85 km
12. A postman was returning to the post office which was in front of him to the north. When the post office was 100 metres away from him, he turned to the left and moved 50 meters to deliver the last letter at Shantivilla. He then moved in the same direction for 40 meters, turns  
[1] 0                              [2] 150                              [3] 90                              [4] 100
13. Which of the following cannot be a number of the series 1, 8, 27, 64, 125, ...?  
[1] 256                              [2] 729                              [3] 512                              [4] 1000
14. Complete the series D-4, F-6, H-8, J-10, ?, ?  
I) K-12, M-13                      [2] L-12, N-14                      [3] L-12, M-14                      [4] K-12, M-14
15. In a certain code language, 'nee muk pic' means 'grave and concern'; 'ill die so' means every body else' and 'tui muk so' means 'body and soul'. Which of the following would mean 'every con cem'?'  
[1] die pic                              [2] pic nee                              [3] ill nee                              [4] Can't be determined
16. In a certain code, '975' means 'Throw away garbage' '528' means 'Give away smoking' and '213' means 'Smoking is harmful'. Which digit in that code means 'Give'?  
[1] 5                              [2] 8                              [3] 2                              [4] 3
17. A woman walking with a boy meets another woman and on being asked about her relationship with the boy, she says, 'My maternal uncle and his maternal uncle's maternal uncle are brothers'. How is the boy related to the woman?  
[1] Nephew                              [2] Son                              [3] Brother-in-Law                      [4] Grandson

**Directions (Qs. 18 to 20):** Read the information given below to answer these questions.

- (i) There is a group of five girls.  
(ii) Kamini is second in height but younger than Rupa.  
(iii) Pooja is taller than Monika but younger in age.  
(iv) Rupa and Monika are of the same age but Rupa is tallest among them.  
(v) Neelam is taller than Pooja and elder to Rupa.
18. If they are arranged in the ascending order of height, then who will be in the third position?  
[1] Monika                              [2] Monika or Rupa                      [3] Rupa                              [4] None of these
19. If they are arranged in the descending order of their ages, then who will be in the fourth position?  
[1] Monika or Rupa                      [2] Monika                              [3] Kamini                              [4] None of these
20. To answer the question "who is the youngest person in the group", which of the given statements is superfluous?  
[1] Only (i)                              [2] Only (v)                              [3] Only (ii)                              [4] Either (i) or (iv)
21. When are the headquarters of Asian Development Bank?  
[1] Manila                              [2] Singapore                              [3] London                              [4] None of these

22. India's Wage Policy is based on  
[1] Productivity [2] Standard of living [3] Cost of living [4] Minimum needs
23. With which game is 'Bully' associated?  
[1] Cricket [2] Football [3] Golf [4] Hockey
24. Black soil is best suited for  
[1] Tea [2] Rice [3] Cotton [4] Coffee
25. Which of the following yields the largest revenue in the Central Budget?  
[1] Excise Duty [2] Sales Tax [3] Income Tax [4] None of these
26. Which is the smallest State of India in terms of  
[1] Sikkim [2] Goa [3] Tripura [4] Nagaland
27. Which state of India has the highest population density?  
[1] UP [2] Kerala [3] West Bengal [4] Bihar
28. Aeroflot Airlines belongs to which country?  
[1] Australia [2] France [3] Russia [4] Germany
29. Thomas Cup is associated with  
[1] Table Tennis [2] Golf [3] Football [4] Badminton
30. The tagline 'Empowering People' is linked with  
[1] HCL [2] Compaq [3] Acer [4] Wipro
31. Which of the following is the latest Indian Institute of Management (IIM)?  
[1] Lucknow [2] Bangalore [3] Kozhikode [4] Indore
32. Who is the second person with Indian roots to be awarded the Nobel Prize (or Literature after Tagore)?  
[1] Arundhati Hoy [2] Vikram Bath [3] VS Naipaul [4] None of these
33. Which bank advertises itself as The World's local bank?  
[1] Citibank [2] HSBC [3] ICICI Bank [4] ABN-AMRO
34. 2008 Olympics will be held in  
[1] London [2] Beijing [3] Sydney [4] New York
35. Which of the following is not a product from Indian Oil?  
[1] Servo Lubricants [2] Xtra Premium Petrol [3] Xtra Mile Diesel [4] Hi-speed Diesel
36. According to the annual Forbes magazine's billionaires rankings released recently, Indian Steel magnet, Lakshmi Narayan Mittal has been placed  
[1] Second [2] Fourth [3] Fifth [4] Third
37. IAEA stands for  
[1] Indian Atomic Energy Agency  
[2] Indian and Afro-Asian Energy Agency  
[3] International Atomic Energy Association  
[4] International Atomic Energy Agency

38. How many countries took part in the 18th Commonwealth Games held in Melbourne in 2006?  
[1] 61 [2] 81 [3] 71 [4] 91
39. Global brand 'Marlboro' deals in  
[1] Beverages [2] Tobacco [3] Retail Food [4] Automobiles
40. Famous book The Argumentative Indian has been written by  
[1] Anurag Mathur [2] Rajdeep Sardesai [3] Amartya Sen [4] Vir Sanghvi

**Directions (Qs. 41 to 45):** Each of these questions has an inference drawn out of the passage given below. Mark your answer as

- [1] If the inference is 'definitely true'  
[2] If the 'data provided are inadequate'  
[3] If the inference is 'probably true'  
[4] If the inference is 'definitely false'

Ministry of Environment and forests has granted environmental clearance to the Karakatla open-cast expansion project of the Central Coal Fields Ltd. in Bihar that envisages exploitation of non-coking coal reserves. The present production level of 0.8 million tonnes is proposed to be expanded to 1.5 million tonnes per annum at an estimated cost of Rs 67.82 crore under the project. The total land area requirement for the proposed mining activities is about 651 hectares which includes about one-sixth of it as forest land.

41. the expansion plan would require about 100 hectares of forest land.
42. Karakatl's open cast mine is the only one of non-coking coal in the country.
43. There is no demand for non-coking coal
44. The production cost of one tonne of non-coking coal from Karakatla mine will be- about Rs.450.
45. Environmental concern gets less priority over the need of the coal.

**Directions (Qs. 46 to 50):** Each of these questions has a statement followed by three suggested Courses of Action numbered I, II and III. Assume every thing in the statement to be true, and decide which of the given Courses of Action logically follows for pursuing.

46. **Statement:** Drinking water supply to New Bombay has been suspended (ill further orders from Maharashtra Pollution Control Board following pollution of Patalganga river, caused by discharge of effluents from some chemical industries.

**Courses of Action:**

- I. The industries responsible for discharging effluents into the river should be asked to close down immediately
- II. The river water should immediately be treated chemically before resuming supply.
- III. The Pollution Control Board should check the nature of effluents being discharged into the river by industries at regular intervals.

- [1] All follow [2] Only II and III follow  
[3] Only I follows [4] Only III follows

47. **Statement:** The Department of Education has recommended that the primary level admission to Government and Government-aided schools should be done purely by random selection and not by admission tests. This is necessitated as the number of admission seekers are much more than the available seats.

**Courses of Action:**

- I. The Government should instruct the private schools also to follow the same practice.
- II. The Government should set up an independent body to regulate the primary level admissions.
- III. The schools should be asked to select student only from those who slay in the neighbouring areas of the school.

- [1] None follows [2] Only II and III follow  
[3] Only I follows [4] Only III follows

48. **Statement:** The vehicular traffic has increased so much in the recent past that it takes at least two hours to travel between the city and the airport during peak hours.

**Courses of Action:**

- I. Non-airport bound vehicles should not be allowed to ply on the road connecting the city and the airport.
- II. The load of vehicular traffic should be diverted through various link roads during peak hours.
- III. The departure and arrival of flights should be regulated so as to avoid congestion during peak hours.

- [1] Only I follows [2] Only I and II follow  
[3] Only II follows [4] All follow

49. **Statement:** Due to cancellation of a huge export order for not adhering, to the lime frame, the company is likely to gel into incurring losses in the current financial year.

**Courses of Action:**

- I. The officer-in-charge of the production should be immediately suspended.
- II. The goods manufactured for the export order should be sold to other parry.
- III. The company should change its machinery to maintain the time frame.

- [1] None fallows [2] Only I and II follow  
[3] Only II follows [4] All follow

50. **Statement:** A devastating earthquake has ravaged the city killing hundreds of people and rendering many more homeless.

**Courses of Action:**

- I. The entry of outsiders into the city should be stopped.
- II. The civic administration should immediately make alternate temporary housing arrangement fur the victims.
- III. The affected people should immediately be shifted to u safer place.

- [1] Only I follows [2] Only III follows  
[3] Only II and III follow [4] Either II or III follows

**Directions (Qs. 51 to 55):** Each of these questions has a statement Followed by three assumptions numbered I, II and III. Consider the statement and the assumptions to decide which of the assumptions is implicit in the statement.

51. **Statement:** The residents of the locality wrote a letter to the Corporation requesting to restore normalcy in the supply of drinking water immediately as the supply at present is just not adequate

**Assumptions:**

- I. The Corporation may not lake any action on the letter.
- II. The municipality has enough water to meet the demand.
- III. The water supply to the area was adequate in the post.

- [1] Only I and III are implicit [2] Only II and III arc implicit  
[3] Only II is implicit [4] Only 111 is implicit

52. **Statement:** We must be prepared to face any eventuality and all the assignments must be completed as per their schedule — Director tells the Faculty members.  
**Assumptions:**  
I. There possibility of a serious eventuality.  
II. Dates are fixed for all the assignments.  
III. Faculty members are supposed to complete all the assignments.  
[1] Only I is implicit [2] Only III is implicit  
[3] None is implicit [4] All are implicit
53. **Statement:** The telephone company informed the subscribers through a notification that those who do not pay their bills by the due date will be charged penalty for every defaulting day.  
**Assumptions:**  
I. Majority of the people may pay their bills by the due date to avoid penalty.  
II. The money collected as penalty may set off the losses due to delayed payment.  
III. People generally pay heed to such notices  
[1] All are implicit [2] Only I and III are implicit  
[3] Only II and III are implicit [4] None of these
54. **Statement:** In view of the recent spurt in sugar prices in the open market, the government has asked the dealers to release a vast quantity of imported sugar in the open market.  
**Assumptions:**  
I. The dealers will follow the government directive.  
II. The sugar prices will come down.  
III. The price of indigenous sugar will remain unchanged.  
[1] Only I and II are implicit [2] Only I and III are implicit  
[3] Only II and III are implicit [4] None is implicit
55. **Statement:** In the recently held All India Commerce Conference, the session on 'Management of Service Sector in India' surprisingly attracted large number of participants and also received a very Rood media coverage in the leading newspapers.  
**Assumptions:**  
I. People were not expecting such an encouraging response for service sector  
II. Service sector is not managed properly in India.  
III. Media is always very positive towards service sector.  
[1] Only I is implicit [2] Only I and III are implicit  
[3] Only II and III are implicit [4] All are implicit

**Directions (Qs. 56 to 60):** Each of these questions has a set of Assertion (A) and Reason (R). Mark the answer as

- [1] If both A and R are true and R is the correct explanation of A.  
[2] A is true but R is False.  
[3] If both A and H are true but R is not the correct explanation of A.  
[4] A is false but R is true.

56. **Assertion (A):** India has a tropical monsoon type climate.  
**Reason (R):** India is located exactly between the tropical latitudes
57. **Assertion (A):** For the production of aluminium, cheap electricity is essential.  
**Reason (R):** Extraction of aluminium from its ore requires abundant supply of electricity.
58. **Assertion (A):** Winds, are deflected to their right in Northern Hemisphere and to the left in the Southern Hemisphere.  
**Reason (R):** Rotation of earth causes the changes in wind direction.

59. **Assertion (A):** Noise pollution is an unwanted accumulation of noise in the atmosphere.  
**Reason (R):** It interferes with communication.
60. **Assertion (A):** Forest cutting is undesirable from the point of view of soil erosion.  
**Reason (R):** Cutting of forests reduces the percolation of rain water.
61. During the year 2004-2005, which commodity out of the following earned the maximum amount in terms of value of exports in India?  
[1] Chemicals                      [2] Engineering Goods    [3] Textiles                      [4] None of these
62. Of the total value of India's foreign trade in 2004-05, the value of imports was nearly  
[1] 45%                              [2] 65%                              [3] 55%                              [4] 35%
63. Agriculture contributes approximately \_\_\_\_\_ of total GDP.  
[1] One-quarter                      [2] One-half                      [3] One-third                      [4] Two-thirds
64. Balance of trade is known to be favourable when  
[1] Value of exported goods exceeds value of imported goods  
[2] Value of imported goods matches with the value of exported goods  
[3] Value of imported goods exceeds the value of exported goods  
[4] None of the above
65. Sensex (Sensitive Index) points towards state of shares of top blue chip companies.  
[1] 50                                      [2] 20                                      [3] 100                                      [4] 30
66. Who finally approves the draft Five-Year-Plans?  
[1] Prime Minister                                      [2] Planning Commission  
[3] President                                      [4] National Development Council
67. Which is India's largest Private Sector Bank?  
[1] HDFC                                      [2] ICICI                                      [3] UTI                                      [4] IDBI
68. Telecom company Nokia belongs to which country?  
[1] USA                                      [2] Sweden                                      [3] Denmark                                      [4] Finland
69. The slogan 'What you dream' is associated with which of the following companies?  
[1] Honda                                      [2] Philips                                      [3] Sony                                      [4] Suzuki
70. In which city are the headquarters of International Monetary Fund (IMF) located?  
[1] New York                                      [2] Berlin                                      [3] Washington                                      [4] Geneva
71. Which company is the world's biggest automaker?  
[1] Toyota                                      [2] General Motors                                      [3] Ford                                      [4] Suzuki
72. Which plant has caught the fancy of many automobile manufacturers and oil companies to be developed as a source of Bio-diesel?  
[1] Neem                                      [2] Jatropha                                      [3] Palm                                      [4] Eucalypts
73. 'Data one' broadband services have been launched by  
[1] MTNL                                      [2] Tata Walky                                      [3] BSNL                                      [4] None of these
74. Inflation leads to  
[1] No Change in price level                                      [2] Abnormal increase in price level  
[3] Abnormal decrease in price level                                      [4] None of the above

75. Percentage export growth rate of India during 2005 was  
[1] 10% [2] 26% [3] S% [4] 21%
76. Indian Railways tied Up with which of the following to launch a co-branded credit card and traveller loyalty card to lap the huge railway passengers market?  
[1] BOB Card [2] Citibank Card [3] SBI Card [4] None of these
77. Indian Railways has been organised into how many zones?  
[1] 14 [2] 16 [3] 15 [4] 17
78. Tenth Five-Year-Plan targets a growth rate of \_\_\_\_\_ of GDP per annum.  
[1] 8% [2] 9% [3] 7% [4] None of these
79. When will the next population census be held in India?  
[1] 2010 [2] 2011 [3] 2015 [4] 2008
80. Of which US university is the Kellogg School of Management a part?  
[1] New York [2] Columbia [3] North-western [4] None of these

**Directions (Qs. 81 to 84):** In these questions, fill in the blanks with the most appropriate alternatives.

81. It is \_\_\_\_\_ that those who expect \_\_\_\_\_ from others are seldom merciful themselves.  
[1] Strange, sincerity [2] Unpardonable, kindness  
[3] Stupid, sympathy [4] Paradoxical, clemency
32. Some people have the \_\_\_\_\_ for learning foreign languages but they have no \_\_\_\_\_ to speak any.  
[1] Aptitude; interest [2] Stamina; fondness  
[3] Capacity; ability [4] Compulsion, inclination
83. In Buddhism, it is impossible to keep ethics and psychology \_\_\_\_\_ from one another, because they \_\_\_\_\_ at 80 many points  
[1] Aloof; merge [2] Disjoin; converge [3] Alien; meet [4] Separate; overlap
84. Cholesterol has long been identified as a silent killer because the patient has no \_\_\_\_\_ of the danger freely \_\_\_\_\_ his system.  
[1] Information; invading [2] Thought; attacking  
[3] Idea; infecting [4] Inkling; traversing

**Directions (Qs. 85 to 88):** In each of these questions, one sentence has been spilt into four parts. There is an error in one part. Identify the part having the error.

85. [1] A skilful advertiser may be able to create  
[2] Not because his product is superior to,  
[3] Practically a monopoly for himself  
[4] But because he has succeeded in inducing people to believe that it is.
86. [1] Whatever may be the origin of speech  
[2] To feel the need to speak  
[3] We can be certain that man did not begin  
[4] Until he began to live in communities

87. [1] I regret to hiring to your kind notice  
[2] Of your school, has been found to be much distressed  
[3] That my son Sachin Dubey of Vth Standard  
[4] And out of sorts for the last few days.
88. [1] Our teeming masses, nevertheless illiterate they may be,  
[2] And they are fully capable  
[3] Have a very high sense of consciousness  
[4] Of exercising their franchise.

**Directions (Qs. 89 to 92):** In each of these questions, four words are given marked as A, B, C and D. Two of these words are most nearly the same or opposite in meaning. Identify those two words.

89. (A) Enthralling (B) Respecting (C) Projecting (D) Alluring  
[1] A – B [2] C – D [3] B – C [4] A – D
90. (A) Swoop (B) Perturb (C) Hump (D) Boil  
[1] A – D [2] A – C [3] B – C [4] B – D
91. (A) Fallacy (B) Adage (C) Dictum (D) Endorse  
[1] B – D [2] B – C [3] C – D [4] A – D
92. (A) Elevate (B) Frugal (C) Exult (D) Lament  
[1] C – D [2] B – C [3] A – B [4] B – D

**Directions (Qs. 93 to 96):** Each of these questions has a set of 3 or 4 sentences to logically convey an idea. The possible filler(s) in the middle is/are given separately as A and B. Mark the answer as

- [1] If A and B are to be filled in that order.  
[2] If only A is to be filled  
[3] If B and A are to be filled in that order.  
[4] If only B is to be filled-
93. As far as aircraft maintenance procedures are concerned, they are rigorous (\_\_\_\_\_). Such cases may end up in disastrous results, though exceptions  
(A) All problems are immediately corrected on almost every occasion  
(B) Only due to urgency or want of aircraft for substitution, certain ones are overlooked.
94. Auto-riding is a very fascinating hobby (\_\_\_\_\_). It is obvious that they consider the hobby more important than anything else.  
(A) Low or even middle income group people cannot afford it.  
(B) I know many people who had missed many important cases or opportunities for participation in auto-riding
95. There is no doubt that we must be fair and honest in all our dealings. (\_\_\_\_\_). What you really are is less important than what you are perceived by people around you.  
(A) It means that perception assumes greater importance than reality.  
(B) But even more important is how you are perceived by others.
96. The admiration for those who fight against corruption in high places has always been very spontaneous amongst the common people in India. (\_\_\_\_\_). They unhesitatingly appreciate such acts but are afraid of openly doing so for fear of the higher ups.  
(A) They hold such people in high esteem who make sacrifices on principles and moral issues.  
(B) They make verbose speeches of admiration and appreciation of such acts.

**Directions (Qs. 97 to 100):** Each of these questions has a sentence scrambled and marked A, B, C, D and E. Find the correct order as one of the four alternatives.

97. (A) in different regions of that federation  
(B) that was Yugoslavia  
(C) the fundamental cause has been the very large difference in the quality of life  
(D) although the dismemberment of the federation  
(E) is seen more as the result of an ethnic conflict  
[1] D, B, E, C, A      [2] B, C, E, D, A      [3] C, E, B, D, A      [4] A, B, D, E, C
98. (A) but there is some merit in it  
(B) as distinct from consumption  
(C) the bifurcation of plan and non-plan funds  
(D) insofar as it focuses attention on development expenses  
(E) in the budget is artificial  
[1] D, C, A, B, E      [2] C, D, B, K, A      [3] C, E, A, R, D      [4] D, E, A, C, B
99. (A) like the industrialised countries  
(B) us if they are to be suffered as relics of a backward past  
(C) we have specially drawn attention to the non-motorised transport modes  
(D) because they are completely overlooked in transport planning  
(E) till replaced by faster petroleum-fuelled transport  
[1] D, E, A, C, B      [2] C, B, A, D, E      [3] C, D, E, B, A      [4] C, D, B, E, A
100. (A) he was highly sensitive and resentful  
(B) towards the country or to those  
(C) when there was even implied discourtesy  
(D) while he was extremely gentle and tolerant  
(E) he held in honour  
[1] A, C, D, B, E      [2] E, A, D, C, B      [3] D, A, C, B, E      [4] D, C, B, E, A
101. A sum of Rs. 25 was paid for a work which A can do in 32 days, B in 20 days, B and C in 12 days and D in 24 days. How much did C receive if all the four work together?  
[1] Rs.14/3      [2] Rs.16/3      [3] Rs.15/3      [4] Rs.17/3
102. A can build up a wall in 8 days while B can break it in 3 days. A has worked for 4 days and then B joined to work with A for another 2 days only. In how many days will A alone build up the remaining part of the wall?  
[1] 13 – days      [2] 6 days      [3] 7 ± days      [4] 7 days
103. A cistern can be filled by two pipes filling separately in 12 and 16 min respectively. Both pipes are opened together for a certain time but being clogged, only 7/8 of the full quantity of water flows through the former and only 5/6 through the latter pipe. The obstructions, however, being suddenly removed, the cistern is filled in 3 min from that moment. How long was it before the full flow began?  
[1] 2.5 min      [2] 4.5 min      [3] 3.5 min      [4] 5.5 min
104. A man sold two steel chairs for Rs 500 each. On one, he gains 20% and on other, he loses 12%. How much does he gain or lose in the whole transaction?  
[1] 1.5% gain      [2] 2% gain      [3] 1.5% loss      [4] 2% loss
105. A sum of money lent out at simple interest amounts to Rs 720 after 2 years and to Rs 1,020 after a further period of 5 years. The sum and the rate % are  
[1] Rs 500, 5%      [2] Rs 400, 15%      [3] Rs 600, 10%      [4] Rs. 700, 20%

106. A man takes 6 hours 30 min in going by a cycle and coming back by scooter. He would have lost 2 hours 10 min by going cycle both ways. How long would it take him to go by scooter both ways?  
[1] 2 hrs [2]  $4\frac{1}{3}$  hrs [3]  $3\frac{1}{3}$  hrs [4]  $5\frac{1}{3}$  hrs
107. A train with 90 km/hr crosses a bridge in 36 seconds. Another train 100 metres shorter crosses the same bridge at 45 km/hr. What is the time taken by the second train to cross the bridge?  
[1] 61 seconds [2] 63 seconds [3] 62 seconds [4] 64 seconds
108. Two pipes A and B can fill a tank in 20 and 30 hours respectively. Both the pipes are opened to fill the tank but when the tank is  $\frac{1}{3}$ rd full, a Leak develops in the tank through which one-third water supplied by both the pipes goes out. The total time taken to fill the tank is  
[1] 12 hours [2] 16 hours [3] 14 hours [4] 18 hours
109. Ramesh travels 760 km to his home, partly by train and partly by car. He takes 8 hours, if he travels 160 km by train and the rest by car. He takes 12 minutes more, if he travels 240 km by train and the rest by car. What are the speeds of the train and the car?  
[1] Speed of car – 90 km/hr. Speed of train – 60 km/hr  
[2] Speed of car – 100 km/hr. Speed of train – 80 km/hr  
[3] Speed of car – 80 km/hr. Speed of train – 70 km/hr  
[4] Speed of car – 100 km/hr, Speed of train – 90 km/hr
110. Some students planned a picnic. The budget for food was Rs.500, but 5 of them failed to go, thus the cost of food for each member increased by Rs. 5. How many students attended the picnic?  
[1] 15 [2] 25 [3] 20 [4] 30
111. In a flight of 6000 km, an aircraft was slowed down due to bad weather. The average speed for the trip was reduced by 400 kmph and the time of flight increased by 30 minutes. The original planned duration of the flight was  
[1]  $1\frac{1}{2}$  hrs [2]  $4\frac{1}{3}$  hrs [3]  $3\frac{1}{3}$  hrs [4]  $5\frac{1}{3}$  hrs
112. After being set up, a company manufactured 6000 scooters in the third year and 7000 scooters in the seventh year. Assuming that the production increases uniformly by a fixed number every year, what is the production in the tenth year?  
[1] 7850 [2] 7650 [3] 7750 [4] 7950
113. Soma purchases National Savings Certificates every year whose value exceeds the previous year's purchase by Rs.400. After 8 years, she finds that she has purchased certificates whose total face value is Rs.48,000. What is the face value of the certificates purchased by her in the first year?  
[1] Rs.4,300 [2] Rs.4,500 [3] Rs.4,400 [4] Rs.4,600
114. A computer is available for Rs.39,000 cash or Rs.17,000 as cash down payment followed by five monthly instalments of Rs.4,800 each. What is the rate of interest under the instalment plan?  
[1] 35.71% pa [2] 37.71% pa [3] 36.71% pa [4] 38.71% pa
115. Under the Rural Housing Scheme, the Delhi Development Authority (DDA) allotted a house to Kamal Raj for Rs.1,26,100. This payment is to be made in three equal annual instalments. If the money is reckoned at S% per annum compound interest. When how much is to be paid by Kamal Raj in each instalment?  
[1] Rs.45,205 [2] Rs.17,405 [3] Rs.46,305 [4] Rs.48,505

116. A pole 5 metres high is fixed on the top of a tower. The angle of elevation of the top of the pole observed from a point A on the ground is  $60^\circ$  and the angle of depression of the point A from the top of the tower is  $45^\circ$ . The height of the tower is  
 [1] 5.83 m [2] 7.83 m [3] 6.83 m [4] 4.83 m
117. A tent is in the form of a right circular cylinder surmounted by a cone. The diameter of the cylinder is 24 m. The height of the cylindrical portion is 11 m while the vertex of the cone is 16 m above the ground. The area of the canvas required for the tent is  
 [1]  $1300\text{m}^3$  [2]  $1320\text{m}^2$  [3]  $1310\text{m}^2$  [4]  $1330\text{m}^2$
118. The average score of boys in an examination in a school is 71 and that of the girls is 73. The average score of the school is 71.8. The ratio of the number of boys to that of the girls that appeared in the examination is  
 [1] 1:3 [2] 3:2 [3] 2:2 [4] 4:2
119. The mean monthly salary paid to 75 workers in a factory is Rs 5,680. The mean salary of 25 of them is Rs 5,400 and that of 30 others is Rs 5,700. The mean salary of the remaining workers is  
 [1] Rs.5000 [2] Rs.7,000 [3] Rs. 6,000 [4] Rs 8,000
120. It is known that a box of 200 electric bulbs contains 16 defective bulbs. One bulb is taken out at random from the box. What is the probability that the bulb drawn is (i) defective (ii) non defective?  
 [1] (i)  $\frac{2}{25}$  (ii)  $\frac{23}{25}$   
 [2] (i)  $\frac{4}{25}$  (ii)  $\frac{21}{25}$   
 [3] (i)  $\frac{3}{25}$  (ii)  $\frac{22}{25}$   
 [4] (i)  $\frac{1}{25}$  (ii)  $\frac{20}{25}$

**Directions (Qs. 121 to 124):** Study the following table to answer these questions.

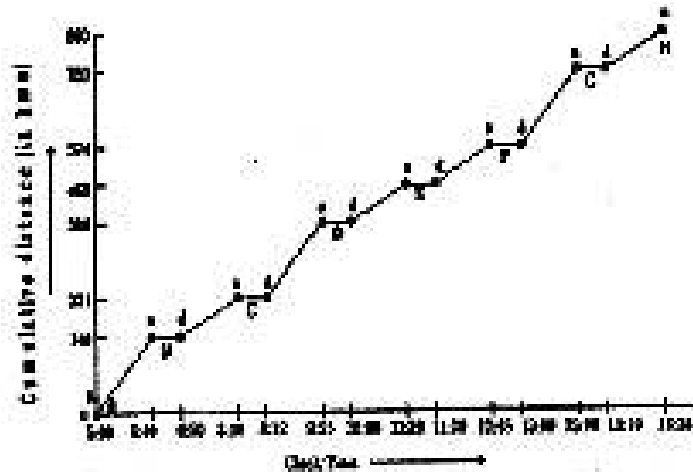
**AVAILABILITY AND DEMAND FOR VARIOUS CATEGORIES OF STEEL IN INDIAN RAILWAYS [in '000 tonnes)**

S.No.	Category	1999–2000		2003–2004	
1	Shapes	6960	5725	9745	9360
2	Flats	4360	5020	6300	6600
3	Railway Material	400	550	450	560

121. If the demand of each category of steel is to be met in 2003-04, then the additional quantity of steel that is to be produced is  
 I. 110 thousand tonnes of railway material  
 II. 300 thousand tonnes of flats  
 III. 385 thousand tonnes of shapes  
 [1] I only [2] III only [3] II only [4] Both II and III
122. The expected percentage growth in the demand for railway material over the five-year period from 1999–2000 to 2003–04 is  
 [1] 11 [2]  $\frac{1}{8}$  [3] 375 [4] 12.5
123. The percentage change in the shortfall of shapes over the five-year period from 1999–2000 to 2003–04 is expected to be  
 [1] + 40 [2] + 221 [3] –68 [4] –221

124. Which one of the following statements is necessarily true?
- [1] The demand for shapes as a percentage of the total demand for steel was almost the same for 1999–2000 and 2003–04.
  - [2] The shortage of shapes is only due to excess availability of Data and railway material.
  - [3] The demand for railway materials as a percentage of the total demand for steel was less in 1999-2000 than in 2003-04.
  - [4] The rate of growth in demand for shapes is greater than the rate of growth in supply of shapes.

**Directions (Qs. 125 to 128):** Study the following line graph to answer these questions.



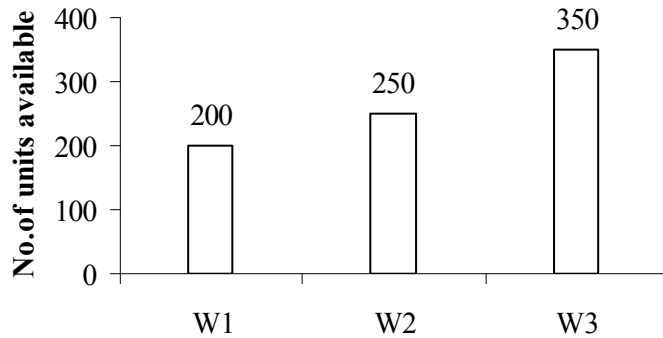
**Railway Time Schedule: of an Express Train X Running Between City A and City H**

a → Arrival of train  
 b → Departure of train  
 A, B, C, D, E, F, G and H → Cities through which train runs.  
 a – d → Indicates stoppage/halting of the train at the city station.

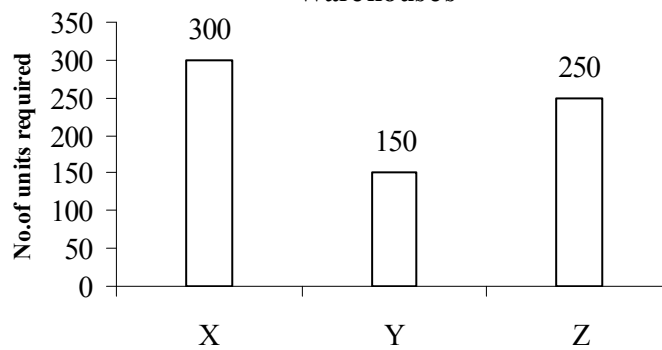
125. The average speed the train maintained between two successive stations was maximum between  
 [1] E – F                      [2] F – G                      [3] G – H                      [4] Both G –H and F–G
126. Between how many pairs of consecutive stations does the speed run below the overall average speed of the entire trip?  
 [1] 4                              [2] 1                              [3] 3                              [4] 2
127. If the train stops at each city for 30% more lime than what it is at the moment, then at what time will it reach the city H after departing from City A as per schedule?  
 [1] Data insufficient        [2] 17 : 03                      [3] 16 : 41                      [4] 16 : 58
128. The train begins its onward journey from City A and it is extended to beyond City H to a City M due to some unavoidable reason. The train starts its return journey immediately after it reached City M. The train returns with a speed of 90 km/ hr without any stoppages in between and reaches City A at 2 : 25 AM. Find the distance between City H and City M.  
 [1] 40 km                              [2] 90 km                              [3] 70 km                              [4] 10 km

**Directions (Qs. 129 to 132):** Examine the following bar graphs to answer these questions.

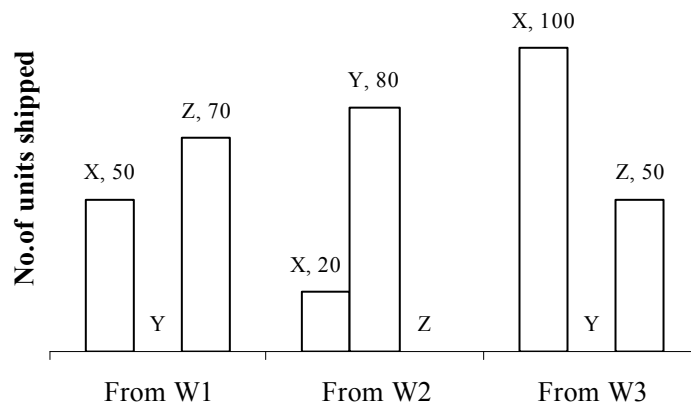
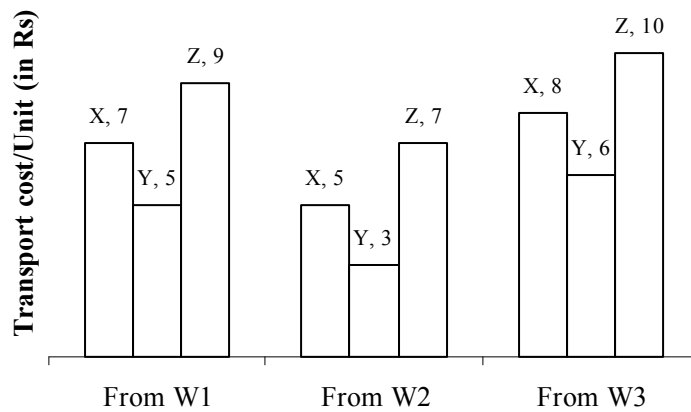
**TRANSPORTATION SCHEDULE OF A COMPANY FROM ITS WAREHOUSES TO ITS OUTLETS**



**Warehouses**



**Outlets**



129. If only warehouse W2 was available, then the minimum cost at which it can supply all the quantity available is  
 [1] Rs. 1,750                      [2] Rs. 750                      [3] Rs. 1,250                      [4] Rs. 950
130. If each warehouse is allowed to supply to only one outlet so that the quantity required for the outlet is fully met from the quantity available at the warehouse, then the cost to be incurred is  
 [1] Rs. 4,900                      [2] Rs. 5,000                      [3] Rs. 5,500                      [4] Rs. 4,700
131. If the outlet Y alone is available, then cost of transporting 100 units from each of the warehouses W1, W2, W3 is  
 [1] Rs. 1,500                      [2] Rs. 2,000                      [3] Rs. 1,400                      [4] Rs. 1,600
132. If goods in W1 are rejected due to manufacturing defect and the corresponding supplies are made from W3, then the cost incurred in transporting (Hit: shipped quantity) is  
 [1] Rs. 2,620                      [2] Rs. 2,740                      [3] Rs. 2,670                      [4] Rs. 2,690

**Directions (Qs. 133 to 136):** Study the following table to answer these questions.

**PROJECTED POPULATION OF LIGHT MOTOR VEHICLES (IN MILLIONS)**

S.No.	Country	1975	2030
1.	United States	141	382
2.	Japan	120	238
3.	France	67	164
4.	China	63	117
5.	Italy	18	61
6.	Germany	21	58
7.	UK	15	47
8.	Canada	5	17
9.	Switzerland	1.5	3

133. The average population of LMVs of the middle three countries in 1975 bears to the average population of LMVs of the last three countries a ratio of nearly  
 [1] 19 : 4                      [2] 11 : 3                      [3] 7 : 2                      [4] 5 : 1
134. The percentage growth of the average population of LMVs for the last three countries between the years 1975 and 2030 is approximately  
 [1] 71                      [2] 212                      [3] 172                      [4] 221
135. For China, assuming a linear growth in LMVs population, extrapolate nearly, when will the growth in population be 108% beyond the year 2030?  
 [1] 2048                      [2] 2050                      [3] 2032                      [4] 2038
136. The percentage growth or the projected LMVs population between 1975 and 2030 among the last five countries is maximum in  
 [1] Italy                      [2] Switzerland                      [3] Canada                      [4] UK

**Directions (Qs. 137 to 140):** Study the following table to answer these questions.

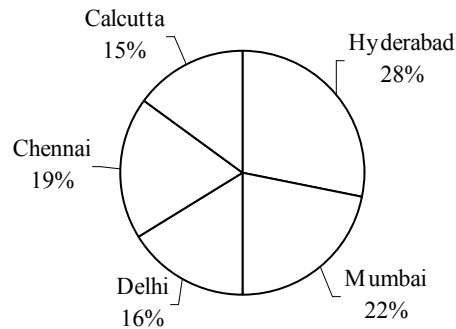
**ALLOTMENT OF SHARES BY A MULTINATIONAL COMPANY**

No. of Shares Applied for	No. of Shares Allotted	Ratio of Allottees to Applicants	No. of Allottees
100	100	1:50	8001
200–500	100	2:41	7624
600–900	200	1:15	6202
1000–3000	200	3:28	1515
3100–10000	200	1:6	1633
10200–21000	300	2:5	404
25000	350	1:1	11

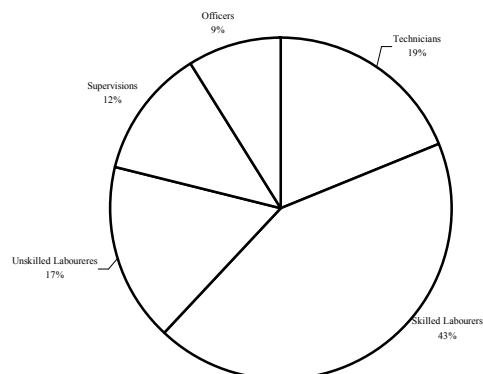
137. Find the total number of applicants who had applied for 3100–25000 shares.  
 [1] 2048                      [2] 10819                      [3] 445                      [4] 7562
138. Find the average number of shares allotted to an allotted?  
 [1] 100                      [2] 150                      [3] 140                      [4] 200
139. Find the ratio between the number of applicants who applied for 1000–3000 shares and those for 10200–21000 shares.  
 [1] 56 : 15                      [2] 15 : 56                      [3] 70 : 3                      [4] 14 : 1
140. If the face value of a share is Rs.100 and the company wanted a subscription of 1 lakh rupees, then how much was oversubscribed?  
 [1] Rs.45,000                      [2] Rs.4,500                      [3] Rs.15,000                      [4] Rs.10,000

**Directions (Qs. 141 to 144):** Study the following pie-charts to answer these questions.

**Distribution of Workforce in a company % Distribution**

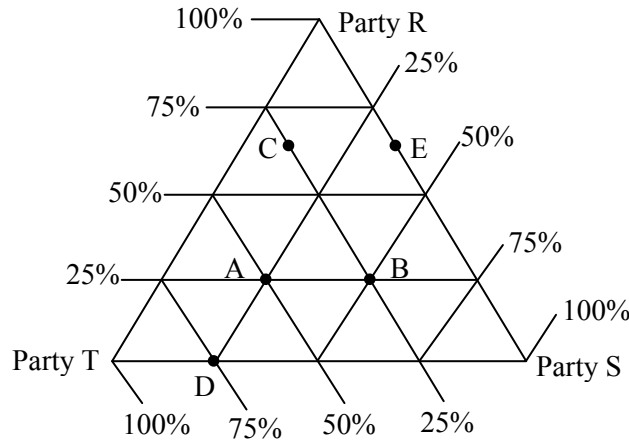


**Distribution of Workforce**

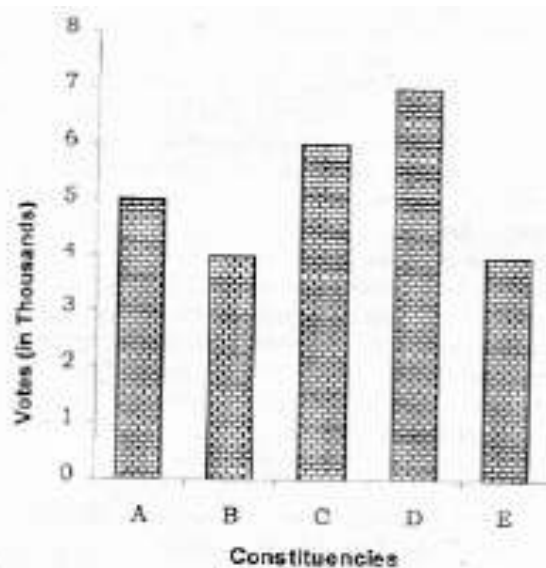


141. If 22% of the Production department persons are posted at Hyderabad region, then what % of Hyderabad workforce are in Production department?  
 [1] 38.5                      [2] 78                      [3] 68                      [4] 22
142. How many supervisors are posted in Calcutta region?  
 [1] 1237                      [2] 985                      [3] 1144                      [4] Data insufficient
143. If 11% officers of the company are in Administration and Accounts department of which 75% are posted at Calcutta, then what % of total officers of the company are posted at Administration and Accounts, Calcutta?  
 [1] U                      [2] 8.25                      [3] 3.75                      [4] Data insufficient
144. If under expansion programme, the company recruits 12% of workforce of Hyderabad and Mumbai regions, but 6% of workforce of Calcutta region retire, and workforce at other regions remains the same, then what will be the total workforce of the company?  
 [1] 65,196                      [2] 68,238                      [3] 72,204                      [4] 69,430

**Directions (Qs.145 to 148):** These questions based on the triangular diagram and bar diagram given below. Study them carefully and answer.



The above triangle diagram shows the distribution of votes among three parties R, S and T in five different constituencies in an election. The following diagram shows the total votes cast for the three parties in these five constituencies.



145. The constituency which casts more votes for S than for T is  
 [1] A [2] C [3] B [4] D
146. Which constituencies east the same number of votes for Party R?  
 [1] A, B [2] B, E [3] B, C [4] None of these
147. Total number of votes secured by T in the five constituencies together is  
 [1] 2,000–4,000 [2] 8,000–10,000 [3] 4,000–6,000 [4] 10,000–12,000
148. If no puny was voted by less than 25% or more than 50% of the total number of votes in the five constituencies, then the total number of voters in the five constituencies should be between  
 [1] 20,000 and 31,000 [2] 21,000 and 31,400 [3] 20,500 and 31,200 [4] 21,500 and 32,000

**Directions (Qs. 149 to 152):** Each of these questions is accompanied by three statements A, B and C. You have to determine which statements A, B is/are sufficient/necessary to answer the given question.

149. Find three positive consecutive even numbers.  
 A. The average of four consecutive even numbers starling from the last o<sup>r</sup> the given numbers is 17.  
 B. The difference of the highest and the lowest number is 4.  
 C. The sum of the squares of die three numbers is 440  
 [1] A alone is sufficient [2] C is sufficient  
 [3] A and B are sufficient [4] Either A or C is sufficient
150. Sonus income is how much more than Monu's ?  
 A. Sonus income is 30% less than her husband's whose provident fund deduction at the rate of 5% is Rs.975 per month.  
 B. Monu spends 30% of her income on house rent. ISK of which is electricity bill  
 C. Sonu's expenditure on house rent is Rs.4,500 more than that of the Monu's.  
 [1] Only B and C are sufficient [2] Any two statements are sufficient  
 [3] Only A and C are sufficient [4] Even all together ore not sufficient
151. Find out the share of B out of the combined share of A, B and C of Rs.946.  
 A. The Share of A is  $\frac{2}{9}$  of the combined share of B and C.  
 B. The share of B is  $\frac{3}{19}$  of the combined share of A and C.  
 C. The share of C is 2.143 times the combined share of B and A  
 [1] Only statements A and C are sufficient  
 [2] Only statement B is sufficient  
 [3] Any two statements are sufficient  
 [4] Either statements A and C together or B alone is sufficient
152. Mohan is 6 years older than Suhan. What will be the sum of their present ages? A After 6 years, the ratio of their ages will be 6 : 5  
 B. The ratio of their present ages is 5 : 4.  
 C. 6 years ago, the ratio of their ages was 4 : 3.  
 [1] Only B is sufficient [2] Only A is sufficient  
 [3] Only A and C together are sufficient [4] Any one of A, B and C is sufficient

**Directions (Qs. 153 to 156):** Each of these question consists of a question and the two statements numbered, I and II given below it. You have to decide whether the data provided in the state ments are sufficient to answer the given question. Read both the statements and give answer as

- [1] if the data in statement I alone are sufficient to answer the question while the data in statement II alone arc not sufficient to answer.  
 [2] if the data either in statement I alone or in statement II alone arc sufficient to answer the question.

- [3] if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer.
- [4] if the data even in both the statements I and II together are not sufficient to answer the question.
153. In a two-digit number, the digit at unit's place is 4 more than the digit at the ten's place. Find the two-digit number.  
I. Sum of their digits is 10.  
II. The difference between the number and the number obtained by interchanging the positions of the digits is 36.
154. What is the average age of the children in a class?  
I. The age of the teacher is as many years as the number of children.  
II. The average age increases by 1 year if the teacher's age is also included.
155. Which newspaper has the maximum circulation in Delhi?  
I. 2 lakh copies of newspaper X are sold in Delhi while the circulation of newspaper Y is estimated at 3 lakh.  
II. The circulation of newspaper Y is 59 percent of the total circulation of newspapers.
156. What is the difference between the shares of profits of Rekha and Nulan out of a profit of Rs. 6000 at the end of the year?  
I. Rekha invested Rs. 50,000 and withdrew Rs. 1,000 after 4 months.  
II. For the last 3 months, Nulan's capital was 125% of the Rekha's.

**Directions (Qs. 157 to 160):** These questions consist of two quantities, One in Column A and one in Column B. You are to compare the two quantities. Mark the answer as

- [1] if the quantity in Column A is greater;  
[2] if the two quantities are equal;  
[3] if the quantity in Column B is greater;  
[4] if the relationship cannot be determined from the information given.

	Column A	Column B
157.	$(-3)^8$	$(-3)^9$
158.	$9 \times 682 \times 7$	$10 \times 682 \times 6$
159.	$c^2 d^2 e^2 / c^3 d^3 e^3$	$cde / 3$
160.	0.0005	$\frac{1}{2}\%$

**Directions (Qs. 161 to 180):** Read the following passages carefully to answer these questions based on the contents of the respective passages and the opinion of the author only.

### Passage – I

Agriculture dominates change in India through its causal links with factor and product markets. It employs 60 per cent of the Labour force and contributes 26 per cent of the gross domestic product. In the poorer states, its contribution to the domestic product is close to 40 per cent. Low productivity in agriculture has led to the concentration of the poor in this sector. Due to the sheer UK of the agricultural economy and the importance of its major products (cereals) in the diets of the poor, gains in agricultural productivity have significant potential impact on poverty. Theoretically, it is possible to reduce poverty as well as expand the domestic market for Industry by raising labour productivity in agriculture and spreading its gains among the low income groups. Modelling of the linkages between agricultural and

industrial growth has shown that a 10 per cent increase in agricultural output would increase industrial output by 5 per cent and urban workers would benefit by both increased industrial employment and price deflation. However, there is a symmetry of adjustments in the demand and supply of agricultural goods. An increase in non-agricultural production would lead to an immediate increase in demand for intermediate and final agricultural goods, whereas supply-side adjustments involving re-allocation of resources and net additional investment for capacity expansion take a much longer period. There is a widely held view that in a large country like India, the demand stimulus for industrialisation would come mainly from agriculture with less social and economic costs.

Interdependencies in food and labour markets are important for the development process. An upward shift in the food supply curve would simultaneously result in an upward shift in the labour demand curve. The magnitude of the interdependence depends on the technique of production causing the shifts in the food supply curve. Similarly, an upward shift in the labour supply curve shifts up the food demand curve. The extent of interdependence between the forces of labour supply and food demand depends on the employment output elasticity and the income elasticity of demand for food. The recent estimate of the employment output elasticity in agriculture is around 0.5, income elasticity of food is in the range of 0.55–0.60 and that for cereals is 0.25–0.30. The other important inter-dependency, which plays a crucial role in inducing indirect employment, is that between food and other sectors through demand linkages. Since food accounts for a major share in the budget of the poor and any reduction in the food price levels a significant proportion of income for other items, a lower food price stimulates employment in industrial and service sectors. On the other hand, an increase in the food price would increase the wage costs of industrial products and hence the prices of industrial products. In the absence of adjustments through exports, it would result in demand deficiency. Clearly, the most favourable situation in India is one in which labour demand outpaces its supply and food supply outpaces its demand.

Wage rate cannot fall below a certain minimum determined by the costs of subsistence living and the labour supply curve turns elastic at the subsistence wage rate. Demographic pressure cannot push the wage rate below the subsistence level. People would be willing to starve rather than work unless the energy expended in physical work is compensated by the energy provided by food. Foodgrain price usually determines the subsistence wage rate in agriculture as well as in the urban informal sector since foodgrains account for about four-fifths of the caloric intake of the poor.

161. Which of the following is meant by "the labour supply curve turns elastic at the subsistence wage rate" as used in the passage?
- [1] People refuse to work at the minimum wage rate.
  - [2] People are eager to work at the minimum wage rate.
  - [3] People still work at the minimum wage rate.
  - [4] People have no option but to work at the minimum wage rate.
162. Which of the following statements is most true in the context of the passage?
- [1] Increase in labour productivity in agriculture can reduce poverty.
  - [2] Agricultural sector can increase the demand for labour forces.
  - [3] Agricultural sector can provide the impetus for greater industrialisation at lower cost.
  - [4] All of the above are true.
163. Which of the following in addition to employment output elasticity, according to the passage, creates indirect employment?
- [1] Inter-linkage of demand of food and other sectors
  - [2] Income elasticity of demand for food
  - [3] Inter-dependence of forces of labour supply and food demand
  - [4] All of the above

164. Why, according to the passage, does lower food price stimulate employment in the industrial and service sectors?
- [1] Poorer people cannot afford to buy non-food products.
  - [2] The production cost of non-agricultural products and services reduces.
  - [3] Lower price of food items provides the poor with extra funds to buy other products and
  - [4] Industrial sector can afford to employ more people at lower cost.

### Passage – II

The lithosphere, or outer shell, of the earth is made up of about a dozen rigid plates that move with respect to one another. New lithosphere is created at mid-ocean ridges by the Upwelling and cooling of magma from the earth's interior. Since new lithosphere is continuously being created and the earth is not expanding to any appreciable extent, the question arises: What happens to the "old" lithosphere?

The answer came in the late 1960s as the last major link in the theory of sea-floor spreading and plate tectonics that has revolutionised our understanding of tectonic processes, or structural deformation, in the earth and has provided a unifying theme for many diverse observations of the earth sciences. The old lithosphere is subducted, or pushed down, into the earth's mantle the thick shell of red hot rock beneath the earth's thin, cooler crust and above its metallic, partly melted core. As the formerly rigid plate descends, it slowly heats up and over period of millions of years, it is absorbed into the general circulation of the earth's mantle.

The subduction of the lithosphere is perhaps the most significant phenomenon in global tectonics. Subduction not only explains what happens to old lithosphere but also accounts for many of the geologic processes that shape the earth's surface. Most of the world's volcanoes and earthquakes are associated with descending lithospheric plates. The prominent island arcs—chains of islands such as the Aleutians, the Kuriles, the Marianas, and the islands of Japan—are surface expressions of the subduction process. The deepest trenches of the world's oceans, including the Java and Tonga trenches and all others associated with island arcs, mark the seaward boundary of subduction zones. Major mountain belts, such as the Andes and the Himalayas, have resulted from the convergence and subduction of lithospheric plates.

To understand the subduction process, it is necessary to look at the thermal regime of the earth. The temperatures within the earth at first increase rapidly with depth, reaching about 1,200 degrees Celsius at a depth of 100 kilometres. Then they increase more gradually, approaching 2,000 degrees C at about 500 kilometres. The minerals in peridotite, the major constituent of the upper mantle, start to melt at about 1,200 C, or typically at a depth of 100 kilometres.

Under the oceans, the upper mantle is fairly soft and may contain some molten material at depths as shallow as 80 kilometres. The soft region of the mantle, over which the rigid lithospheric plate normally moves, is the asthenosphere. It appears that in certain areas, convection currents in the asthenosphere may drive the plates and that in other regions, the plate motions may drive the convection currents.

Several factors contribute to the heating of the lithosphere as it descends into the mantle. First, heat simply flows into the cooler lithosphere from the surrounding warmer mantle. Since the conductivity of the rock increases with temperature, the conductive heating becomes more efficient with increasing depth. Second, as the lithospheric slab descends, it is subjected to increasing pressure, which introduces heat of compression. Third, the slab is heated by the radioactive decay of uranium, thorium and potassium, which are present in the earth's crust and add heat at a constant rate to the descending material. Fourth, heat is provided by the energy released when the minerals in the lithosphere change to denser phases, or more compact crystal structures, as they are subjected to higher pressures during descent. Finally, heat is generated by friction, shear stresses and the dissipation of viscous motions at the boundaries between the moving lithospheric plate and the surrounding mantle. Among all these sources, the first and fourth contribute the most toward the heating of the descending lithosphere.

165. According to the passage, which of the following Statements is/are true of the earth's mantle?
- I. It is in a state of flux.
  - II. Its temperature far exceeds that of the lithosphere.
  - III. It eventually incorporates the subducted lithosphere.
- [1] I only                      [2] I and III only                      [3] II only                      [4] I, II and III
166. It can be inferred from the passage that the author regards current knowledge about the relationship between lithosphere plate motions and the convection currents in the asthenosphere
- [1] Obsolete                      [2] Derivative                      [3] Unfounded                      [4] Tentative
167. The author is most probably addressing which of the following audiences?
- [1] Geothermal researchers investigating the asthenosphere as a potential energy source
  - [2] College undergraduates enrolled in an introductory course on geology
  - [3] Historians of science studying the origins of plate tectonic theory
  - [4] Graduate students engaged in analysing the rate of sea–floor spreading
168. Which of the following is not true of the heating of the lithosphere as it is described in the passage?
- [1] The temperature gradient between the lithosphere and the surrounding mantle enables heat to be transferred from the latter to the former.
  - [2] The more the temperature of the lithospheric slab increases, the more conductive the rock itself becomes.
  - [3] Minerals in the lithospheric slab release heat in the course of phase changes that occur during their descent into the mantle.
  - [4] The further the lithospheric slab descends into the mantle, the faster the radioactive decay of elements within it adds to its heat.

### Passage – III

It is indisputable that in order to fulfil its many functions, water should be clean and biologically valuable. The costs connected with the provision of biologically valuable water for food production, with the maintenance of sufficiently clean water, therefore, are primarily production costs. Purely “environmental” costs seem to be in this respect only costs connected with the safeguarding of cultural, recreational and sports functions which the water courses and reservoirs fulfil both in nature and in human settlements. The pollution problems of the atmosphere resemble those of the water only partly. So far, the supply of air has not been deficient as was the case with water, and the dimensions of the meshed arc so vast that a number of people still hold the opinion that air need not be economised. However, scientific forecasts have shown that the time may be already approaching when clean and biologically valuable air will be a problem No.1.

Air being ubiquitous, people are particularly sensitive about any reduction in the quality of the atmosphere, the increased contents of dust and gaseous exhalations, and particularly about the presence of odours. The demand for purity of atmosphere, therefore, emanates much, more from the population itself than from the specific sectors of the national economy affected by a polluted or even biologically aggressive atmosphere.

The households' share in atmospheric pollution is far bigger than that of industry which, in turn, further complicates the economic problems of atmospheric purity. Some countries have already collected positive experience with the reconstruction of whole urban sectors on the basis of new heating appliances based on the combustion of solid fossil fuels, estimates of the economic consequences of such measures have also been put forward.

In contrast to water, where the maintenance of purity would seem primarily to be related to the costs of production and transport, a far higher proportion of the costs of maintaining the purity of the atmosphere

derives from environmental consideration Industrial sources of gaseous and dust emissions are well known and classified; their location can be accurately identified, which makes them controllable. With the exception, perhaps, of the elimination of sulphur dioxide, technical means and technological processes exist which can be used for the elimination or all excessive impurities of the air from the Various emissions.

Atmospheric pollution caused by the private property of individuals (their dwellings, automobiles, etc) is difficult to control. Some sources such as motor vehicles are very mobile, and they are thus capable of polluting vast territories In this particular case, the cost of anti-pollution measures will have to be borne, by a considerable extent, by individuals, whether in the form of direct costs or indirectly in the form of taxes, dues, surcharges, etc.

The problem of noise is a typical example of an environmental problem which cannot be solved only passively, ie merely by protective measures, but will require the adoption of active measures, i.e. direct interventions at the source. The costs of a complete protection against noise are so prohibitive as to make it unthinkable even in the economically most developed Countries. At the same time, it would not seem feasible, either economically or politically, to force the population to carry the costs of individual protection against noise, for example, by reinforcing the sound insulation of their homes. A solution or this problem probably cannot be found in the near future.

169. Scientific forecasts have shown that clear and biologically valuable air
- [1] Is likely to remain abundant for some time
  - [2] May soon be dangerously lacking
  - [3] Creates fewer economic difficulties than does water pollution
  - [4] May be beyond the capacity of our technology to protect
170. The costs involved in the maintenance of pure water are determined primarily by
- I. Production costs
  - II. Transport costs
  - III. Research costs
- [1] I only                      [2] I and II only                      [3] III only                      [4] II and III only
171. According to the passage, the problem of noise can be solved through
- I. Active measures
  - II. Passive measures
  - III. Tax levies
- [1] I only                      [2] I and II only                      [3] III only                      [4] II and III only
172. According to the passage, the costs of some antipollution measures will have to be borne by individuals because
- [1] Individuals contribute to the creation or pollution
  - [2] Industry is not willing to bear its share
  - [3] Governments do not have adequate resources
  - [4] Individuals are more easily taxed than producers

#### Passage – IV

Much as an electrical lamp transforms electrical energy into heat and light, the visual “apparatus” of a human being acts as a transformer of light into sight. Light projected from a source or reflected by an object enters the cornea and lens of the eyeball. The energy is transmitted to the retina of the eye whose rods and cones are activated The stimuli are transferred by nerve cells to the optic nerve and then to the brain, man is a binocular animal, and the impressions from his two eyes are translated into sight—a rapid, compound analysis of the shape, form, colour, size, position, and motion of the things he sees Photometry is the science of measuring light The illuminating engineer and designer employ photometric data

constantly in their work. In all fields of application of light and lighting, they predicate their choice of equipment, lamps, wall finishes, colours of light and backgrounds, and other factors affecting the luminous and environmental pattern to be secured, in great part from data supplied originally by photometric laboratory. Today, extensive tables and charts of photometric data are used widely, constituting the basis for many details of design. Although the lighting designer may not be called upon to the detailed work of making measurements or plotting data in the form of photometric curves and analyzing them, an understanding of the terms used and their derivation form valuable background knowledge. The perception of colour is a complex visual sensation, intimately related to light. The apparent colour of an object depends primarily upon four factors : its ability to reflect various colours of light, the nature of the light by which it is seen, the colour of its surroundings, and the characteristics and state of, adaptation of the eye. In most discussions of colour, a distinction is made between white and coloured objects. White is the colour name most usually applied to a material that diffusely transmits a high percentage of all the hues of light. Colours that have no hue are termed neutral or achromatic colours. They include white, off-white, all shades of gray, down to black. All coloured objects selectively absorb certain wavelengths of light and reflect or transmit others in varying degrees. Inorganic materials, chiefly metals such as copper and brass, reflect light from their surfaces. Hence we have the term "surface" or "metallic" colours, as contrasted with "body" or "pigment" colours. In the former, the light reflected from the surface is often tinted. Most paints, on the other hand, have body or pigment colours. In these, light is reflected from the surface without much colour change, but the body material absorbs some colours and reflects others; hence, the diffuse reflection from the body of the material is coloured but often appears to be overlaid and diluted with a "white" reflection from the glossy surface of the paint film. In paints and enamels, the pigment particles, which are usually opaque, are suspended in a vehicle such as oil or plastic. The particles of a dye, on the other hand, are considerably finer and may be described as colouring matter in solution. The dye particles are more often transparent or translucent,

173. According to the passage, lighting engineers need not
- [1] Plot photometric curves
  - [2] Utilize photometric data
  - [3] Understand photometric techniques
  - [4] Have mathematical expertise
174. The colour black is an example of
- [1] A surface colour
  - [2] An achromatic colour
  - [3] An organic colour
  - [4] A diffuse colour
175. Paint is an example of a substance containing
- [1] Inorganic material
  - [2] Body colours
  - [3] Surface colours
  - [4] Metallic colours
176. The perception of colour is
- [1] A photometric phenomenon
  - [2] A complex visual sensation
  - [3] Activated by the brain
  - [4] Light reflected by a source

**Passage – V**

At the Fourth World Water Forum held in Mexico City in March 2006, the 120-nation assembly could not reach a consensus on declaring the right to safe and clean drinking water a human right. Millions of people the world over do not have access to potable water supply. But it is good times for the bottled water industry, which is cashing in on the need for clean drinking water and the ability of urban elite to pay an exorbitant price for this very basic human need. The fortunes of this more-than-\$100-billion global industry are directly related to the human apathy towards the environment—the more we pollute our water bodies, the more the sales of bottled-water, it is estimated that the global consumption of bottled-water is nearing 200 billion litres – sufficient to satisfy the daily drinking water need of one-fourth of the Indian population or about 4.5 per cent of the global population.

In India, the per capita bottled water consumption is still quite low—less than five litres a year as compared to global average of 24 litres. However, the total annual bottled-water consumption has risen rapidly in recent times—it has tripled between 1999 and 2004—from about 1.5 billion litres to five billion litres. These are boom times for the Indian bottled-water industry—more so because the economics are sound, the bottom line is fat and the Indian government hardly cares for what happens to the nation's water resources. India is the tenth largest bottled-water consumer in the world. In 2002, the industry had an estimated turnover of Rs.10 billion (Rs.1,000 crore). Today it is one of the India's fastest growing industrial sectors. Between 1999 and 2004, the Indian bottled-water market grew at a compound annual growth rate (CAGR) of 25 percent the highest in the world. With over a thousand bottled-water producers, the Indian bottled-water industry is big by—even international standards. There are more than 200 brands, nearly 80 percent of which are local. Most of the small-scale producers sell non-branded products and serve small markets. In fact, making bottled-water is today a cottage industry in the country. Leave alone the metros, where a bottled-water manufacturer can be found even in a one-room shop, in every medium and small city and even some prosperous rural areas there are bottled-water manufacturers.

Despite the large number of small producers, this industry is dominated by the big players—Parle Bisleri, Coca-Cola, PepsiCo, Parle Agra, Mohan Meakins, SKN Breweries and so on. Parle was the first major Indian company to enter the bottled-water market in the country when it introduced Bisleri in India 25 years ago. The rise of the Indian bottled water industry began with the economic liberalisation process in 1991. The market was virtually stagnant until 1991, when the demand for bottled water was less than two million cases a year. However, since 1991–1992 it has not looked back, and the demand in 2004–05 was a staggering 82 million cases. Bottled-water is sold in a variety of packages: pouches and glasses, ml bottles, 500 ml bottles, one-litre bottles and even 20 to 50 litre bulk water packs. The formal bottled-water business in India can be divided broadly into three segments in terms of cost: premium natural mineral water, natural mineral water and packaged drinking water. Attracted by the huge potential that India's vast middle class offers, multinational players such as Coca-Cola and PepsiCo have been trying for the past decade to capture the Indian bottled-water market. Today, they have captured a significant portion of it. However, Parle Bisleri continues to hold 40 per cent of the market share. Kinley and Aquafina are fast catching up, with Kinley holding 20–25 per cent of the market and Aquafina approximately 10 per cent. The rest, including the smaller players, have 20–25 per cent of the market share.

The majority of the bottling plants whether they produce bottled-water or soft drinks—are dependent on ground-water. They create huge water stress in the areas where they operate because groundwater is also the main source—in most places the only source—of drinking water in India. This has created huge conflict between the community and the bottling plants. Private companies in India can siphon out, exhaust and export groundwater free because the groundwater law in the country is archaic and not in tune with the realities of modern capitalist societies. The existing law says that "the person who owns the land owns the groundwater beneath." This means that, theoretically, a person can buy one square metre of land and take all the groundwater of the surrounding areas and the law of land cannot object to it. This law is the core

of the conflict between the Community and the companies and the major reason for making the business of bottled-water in the country highly lucrative.

177. According In the passage, which one of the following statements is not true?  
[1] Private companies are exploiting groundwater resources in India due to outdated law.  
[2] The growth of Indian bottled-water industry is n pre economic liberalisation process  
[3] Manufacturers excluding bigger players have approximately 20–25% of the market share of bottled-water.  
[4] Bottled-water production in India is a cottage-industry today.
178. Which brand is having, the largest pie in the Indian bottled-water market?  
[1] Coca-Cola                      [2] Parle Bisleri                      [3] Pepsi Cola                      [4] Mohan Meakins
179. What is/are the reason(s) for the global growth or bottled-water industry?  
[1] Pollution of water bodies  
[2] Basic human need for clean drinking water  
[3] Paying capacity of the elite  
[4] All of the above
180. According to the passage, which of the following statements is/are true?  
A. In India, the increase in total annual bottled-water consumption is followed by increase in per capita bottled-water consumption.  
B. Indian bottled-water market grew at the highest CAGR.  
C. The formal bottled-water business in India is divided into broadly two segments in terms of cost.  
[1] A only                      [2] A and C both                      [3] B only                      [4] A, B and C
181. A polygon has 25 sides, the lengths of which starting from the smallest aide are in AP. If the perimeter of the polygon is 2100 cm and the length or the largest side is 20 times that or the smallest, then the length of the smallest side and the common difference of the AP are  
[1] 8 cm and  $6\frac{1}{3}$  cm respectively                      [2] 8 cm and  $5\frac{1}{3}$  cm respectively  
[3] 6 cm and  $6\frac{1}{3}$  cm respectively                      [4] None of these
182. A car travels 2S km an hour faster than a bus for a journey of 500 km. If the bus takes 10 hours mare than the car., then the speeds of the bus and the car are  
[1] 25 km/hr and 40 km/hr respectively                      [2] 25 km/hr and 60 km/hr respectively  
[3] 25 km/hr and 50 km/hr respectively                      [4] None of these
183. When a group photograph is taken, all the seven teachers should he in the first row and all the twenty students should be in the second row. If the two corners of the second row arc reserved for the two tallest students, interchangeable only between them, and if the middle sent of the front row is reserved for the principal, then the number of such possible arrangements is  
[1]  $720 \times 18!$                       [2]  $1440 \times 18!$                       [3]  $1370 \times 18!$                       [4] None of these
184. In a certain city, alt telephone numbers have six digits, the first two digits always being 41 or 42 or 46 or 62 or 64. The number of telephone numbers having all the six digits distinct is  
[1] 8400                      [2] 9200                      [3] 7200                      [4] None of these
185. A person standing on the bank of a river finds that, the angle of elevation of the top of a tower on the opposite bank is  $45^\circ$ . Which of the following statements is correct?  
[1] Breadth of the river is twice the height of the tower.  
[2] Breadth of the river is half of the height of the tower.  
[3] Breadth of the river and the height of the tower are the same.  
[4] None of these

186. Three groups A, B and C are contesting for a position on the Board of Directors of a company. The probabilities of their winning are 0.5, 0.3 and 0.3 respectively. If the group A wins, then the probability of introducing a new product is 0.7 and the corresponding probabilities for group B and C are 0.6 and 0.5 respectively. The probability that the new product will be introduced is  
 [1] 0.52 [2] 0.74 [3] 0.63 [4] None of these
187. An article manufactured by a company consists of two parts A and B. In the process of manufacture of part A, 9 out of 100 are likely to be defective. Similarly 5 out of 100 are likely to be defective in the process of manufacture of part B. The probability that the assembled part will not be defective is  
 [1] 0.8645 [2] 0.9645 [3] 0.6243 [4] None of these
188. A firm of readymade garments makes both men's and women's shirts. Its average profit is 6% of the sales. Its profit in men's shirts average 8% of the sales and women's shirts comprise 60% of the output. The average profit per sales rupee in women's shirts is  
 [1] 0.0466 [2] 0.0666 [3] 0.0166 [4] None of these
189. In a certain town, 25% families own a phone, 15% own a car and 65% own neither a phone nor a car. 2,000 families own both a car and a phone. Consider the following statements in this regard:  
 I. 10% families own both a car and a phone.  
 II. 35% families own either a car or a phone,  
 III. 40,000 families live in the town.  
 Which of the above statements are correct?  
 [1] I and II [2] II and III [3] I and III [4] I, II and III
130. The hands, of a clock are 10 cm and 7 cm respectively. The difference between the distance traversed by their extremities in 3 days 5 hours is  
 [1] 4552.67 cm [2] 4557.67 cm [3] 4555.67 cm [4] 4559.67 cm
191. A circular grass plot, whose diameter is 70 m, contains a gravel walk 5 m wide round it, 15 m from the edge. The cost to turf the grass plot at Rs.2 per m<sup>2</sup> is  
 [1] Rs. 6,000 [2] Rs. 6,400 [3] Rs. 6,200 [4] Rs. 6,600
192. The trunk of a tree is a right cylinder 1.5 m in radius and 10 m high. The volume of the timber which remains when the trunk is trimmed just enough to reduce it to a rectangular parallelepiped on a square base is  
 [1] 44 m<sup>3</sup> [2] 46 m<sup>3</sup> [3] 45 m<sup>3</sup> [4] 17 m<sup>3</sup>
193. A semicircular sheet of paper of diameter 28 cm is bent to cover the exterior surface of an open conical ice cream cup. The depth of the ice cream cup is  
 [1] 10.12 cm [2] 8.12 cm [3] 12.12 cm [4] 14.12 cm
194. If  $\log_a b = \frac{1}{2}$ ,  $\log_b c = \frac{1}{3}$  and  $\log_c a = \frac{K}{5}$ , then the value of K is  
 [1] 25 [2] 35 [3] 30 [4] 20
195. The HCF and LCM of two numbers are 21 and 4641 respectively. If one of the numbers lies between 200 and 300, then the two numbers are  
 [1] 273, 357 [2] 273, 361 [3] 273, 359 [4] 273, 363
196. When the price of a commodity is decreased by 10%, its consumption increases by 10%. The change in the revenue derived from it is K%. The value of K is  
 [1] 0 [2] -1 [3] 1 [4] 2

197. The average monthly expenditure of a family was Rs.2200 during the first 3 months; Rs.2250 during the next 4 months and Rs.3120 during the last 5 months of a year. If the total savings during the year were Rs.1260, then the average monthly income was  
1) Rs.2605                      [2] Rs. 2805                      [3] Rs. 2705                      [4] Rs. 2905
198. In an express train, the number of passengers travelling in AC sleeper class. First class and Sleeper class are in the ratio 1:2:3, and the fares to each of these classes are in the ratio 5:4:2. If the total income from this train is Rs.54000, then the income from the AC sleeper class is  
1) Rs.8000                      [2] Rs. 12000                      [3] Rs.10000                      [4] Rs. 6000
199. Five litres of water is added to a certain quantity of pure milk costing Rs 3 per litre. If by selling the mixture at the same price as before, a profit of 20% is made, then what is the amount of pure milk in the mixture?  
[1] 20 litres                      [2] 30 litres                      [3] 25 litres                      [4] 35 litres
200. A dishonest hair dresser uses a mixture having 5 parts pure aftershave lotion and 3 parts of pure water. After taking out some portion of the mixture, he adds equal amount of pure water to the remaining portion of the mixture such that the amount of aftershave lotion and water became equal. The part of the mixture taken out is  
[1]  $\frac{1}{3}$                       [2]  $\frac{1}{5}$                       [3]  $\frac{1}{4}$                       [4]  $\frac{1}{6}$

