

GBO – 2009 Solutions

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|-------|--|-------|--|
| 1. 2 | 'Their' is a plural pronoun and should not be used for the government. | 19. 2 | Flowers make a bouquet, whereas links make a chain. |
| 2. 4 | 'Because' is redundant, in the context of the sentence, as 'reason' has already been used. | 20. 1 | Encourage is the antonym of restrict and deprive is the antonym of supply. |
| 3. 3 | 'Had the gates opened' is incorrect as it breaks the parallel sequence. 'To open the gates' must replace 'had the gates opened'. | 21. 4 | The correct sentence must read, "It was time for us to start making preparation to leave". The infinitive construction, "to start" must be used in the sentence. |
| 4. 3 | The primary subject of the sentence is 'the block of flats'. Singular verb 'was' must replace the plural verb 'were'. | 22. 1 | We use "had better" plus the infinitive without "to" to give advice. Although "had" is the past form of "have", we use "had better" to give advice about the present or future. |
| 5. 3 | 'They' is redundant in the context of the sentence. | 23. 3 | 'Read' which is the past form of 'read' must be used in order to maintain tense consistency. |
| 6. 2 | 'Venerate', which means to regard or treat with reverence, is not a synonym of 'abridge'. | 24. 4 | 'Walking down the crowded street' is the correct expression. |
| 7. 3. | 'Vindict' is not a synonym of 'cognizant'. | 25. 1 | The sentence is in the present tense as it discusses a recurrent action, a sort of habit. 'Reads' must be used in order to maintain tense consistency. |
| 8. 4. | 'Fusion', which means the act or process of fusing; the state of being fused, is not a synonym of 'fissure'. | 26. 3 | 'Adamant' fills the blank correctly. An adamant attitude precludes the expectancy of a harmonious agreement. |
| 9. 1 | 'Immoral', which means conflicting with generally or traditionally held moral principles, is not a synonym of 'innocuous'. | 27. 4 | 'Considerable' fills the second blank correctly. It brings out the contrast that although the accomplishments of Indian artists are considerable, the public at large does not know much about the Indian artists. |
| 10. 2 | 'Perishable', which means liable to perish, spoil or decay, is not a synonym of 'perennial'. | 28. 3 | 'Capricious', which means changeable and unpredictable, fills the blank well. |
| 11. 4 | 'Officious', which means kind and obliging, is not an antonym of 'latent'. | 29. 3 | Uterior, which means hidden and secretive, suits the context of the sentence. |
| 12. 3 | 'Brave' is not an antonym of 'naive'. 'Naive' means innocent. | 30. 2 | He found himself in an anomalous or inconsistent position as he had to support a point of view that he did not approve of. |
| 13. 1 | 'Legal', which means permitted by law, is not an antonym of 'regal'. | 31. 4 | 'Before' brings out the contrast between what happened earlier and what happened later. |
| 14. 1 | 'Calmness', which means free from excitement or passion, is a synonym of 'tranquility'. | 32. 3 | 'Preserve', which means to protect and safeguard, suits the context. |
| 15. 4 | 'Seethe', which means to be in a state of agitation or excitement, is not an antonym of 'amalgamate'. | 33. 2 | 'Went' should be used, as it will maintain tense consistency. The paragraph is in past tense. |
| 16. 2 | Pat: To stroke or tap gently with the palm or fingers. Slap: To strike sharply, esp. with the open hand or with something flat. | 34. 1 | 'A' should be used as it conveys the sense of 'any'. |
| 17. 3 | Debility: A weakened or enfeebled state; weakness. Strength: The quality or state of being strong. | 35. 2 | 'That' should be used. |
| 18. 4 | Germ causes disease, whereas war causes destruction. | 36. 4 | 'The' should be used as it refers to firebrand which has already been described earlier. |

37. 4 'Could be' fills the blank correctly. It clearly brings out the idea of the discovery of a firebrand's potential as a device for illumination.

38. 2 'Probably' suits the context because it talks about the chance factor involved in the discovery.

39. 1 'Of', which is the preposition of reason/purpose, fills the blank correctly.

40. 3 'May have had' rightly conveys the idea of early man's first conception.

$$41.2 \quad 0.\bar{3} = \frac{1}{3} = \left(\frac{1}{3^3}\right)^{\frac{1}{3}} = \left(\frac{1}{27}\right)^{\frac{1}{3}}$$

$$= \left(\frac{1}{x}\right)^{\frac{1}{y}}$$

$\therefore x = 27$ and $y = 3$
Hence, $xy = 81$

42. 2 Let the numbers be x and $x + 1$
So, $x^2 + (x + 1)^2 = 61$
 $\Rightarrow x^2 + x^2 + 1 + 2x = 61$
 $\Rightarrow 2x^2 + 2x - 60 = 0$
 $\Rightarrow x^2 + x - 30 = 0$
 $\Rightarrow (x + 6)(x - 5) = 0$
 $\Rightarrow x = 5, -6$
As x is a natural number so it can not be -6
So $x = 5$, and $x + 1 = 6$

$$43.3 \quad \frac{(0.11)^2}{(1.1)^2 \times 0.1} = \frac{0.0121}{1.21 \times 0.1} = \frac{1}{10} = 0.1$$

$$\frac{(1.1)^2}{(11)^2 \times (0.01)^2} = \frac{1.21}{121 \times 0.0001} = 100$$

$$\frac{(0.011)^2}{(1.1)^2 \times (0.01)^2} = \frac{0.000121}{1.21 \times 0.0001} = 1$$

$$\frac{(0.11)^2}{11^2 \times 0.01} = \frac{.0121}{121 \times .01} = \frac{1}{100} = 0.01$$

44. 2 A number of form $10^n - 1$ will result in n 9's.
As sum of digits = 4707
So, $9n = 4707$
 $\Rightarrow n = 523$

$$45.4 \quad \left(\frac{1}{5}\right)^{2000} = (.2)^{2000}$$

The last digit in decimal representation will be 6

46. 2 Let $x = 4^{50} = 2^{100}$
Taking log both sides
 $\log x = 100 \log 2$
 $= 100 \times .3010$
 $= 30.10$
 $x = \text{antilog}(30.10)$
So x will have 31 digits.

$$47.3 \quad \log \frac{a^2}{b} + \log \frac{b}{a^2} = \log(a + b)$$

$$\Rightarrow \log\left(\frac{a^2}{b} \times \frac{b}{a^2}\right) = \log(a + b)$$

$$\Rightarrow \log 1 = \log(a + b)$$

Hence, $a + b = 1$

$$48.4 \quad \frac{1}{\log ab} \times \frac{1}{\log bc} \times \frac{1}{\log ca}$$

$$= \frac{\log a}{\log b} \times \frac{\log b}{\log c} \times \frac{\log c}{\log a}$$

$$= 1$$

49. 3 Let the length of the side of the square be a units
So, the length of the diagonal of the square = $\sqrt{2a}$ units
 \therefore The length of the side of the second square = $\sqrt{2a}$ units

$$\text{Hence, the required ratio} = \frac{a^2}{2a^2} = \frac{1}{2} = 1 : 2$$

Let the side of the cube be a cm.

50. 3 According to condition:

$$\sqrt{3}a = 2r \text{ cm.}$$

$$\Rightarrow a = \frac{2}{\sqrt{3}}r \text{ cm.}$$

$$\text{So, volume of the cube} = \left(\frac{2}{\sqrt{3}}r\right)^3$$

$$= \frac{8}{3\sqrt{3}}r^3 \text{ cm}^3$$

51. 1 Let side of square inscribed in the circle be 'a' units while that of square inscribed in the semicircle be 'b' units.

$$\text{Now } \sqrt{2a} = 2r \text{ and } \frac{5}{4}b^2 = r^2$$

$$\Rightarrow a = \sqrt{2r}$$

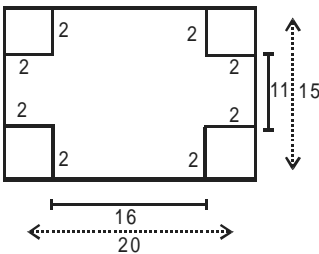
$$\Rightarrow a^2 = 2r^2$$

$$\Rightarrow b^2 = \frac{4}{5}r^2$$

$$\text{Hence, the required ratio} = \frac{2r^2}{\frac{4}{5}r^2}$$

$$= \frac{5}{2} = 5 : 2$$

52. 2



The dimensions of open box thus formed will be $l \times b \times h = 16 \times 11 \times 2$

\therefore Outer surface area = $2 \times (lh + bh) + lb$ (since the box is open)

$$= 2(16 \times 2 + 11 \times 2) + 16 \times 11 = 284 \text{ cm}^2$$

53. 1 Number of Rotations =

$$\frac{\text{Total length to be covered (i.e. circumference of bigger ring)}}{\text{Length covered by smaller ring in 1 rotation (i.e. circumference of smaller ring)}}$$

$$= \frac{2 \times \pi \times 10}{2 \times \pi \times 2} = 5 \text{ rotations}$$

54. 3 The perimeter of triangular and square parts are same
Now, length of triangular parts = 8 m

$$(\because \text{area} = 16\sqrt{3} \text{ m}^2)$$

Let a be the length of the side of the square

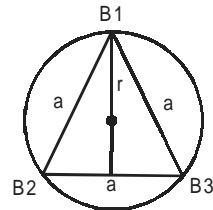
$$\text{So, } 24 = 4a$$

$$\Rightarrow a = 6 \text{ m}$$

Hence, the diagonal of the square = $6\sqrt{2} \text{ m}$

55. 4 The length of the tape required will be equal to the sum of the lengths of all edges. i.e. $4 \times (30 + 25 + 20) = 4 \times 75 = 300 \text{ cm}$.

56. 2



Since the boys are standing at equal distance from each other. They make an equilateral triangle.

Now, altitude of $\Delta = \frac{\sqrt{3}}{2}a$ (where a is the side of Δ)

also this altitude = $\frac{3}{2}r$ where r is the radius of the circle (altitude is also the median of the Δ and the centre of the circle is the centroid)

$$\Rightarrow \frac{\sqrt{3}}{2}a = \frac{3}{2} \times 5 = 5\sqrt{3} \text{ m}$$

57. 4 Let the dimensions of Meeta's lunch box be $l \times b \times h$.
So, the dimensions of Rita's lunch box be

$$= \frac{11}{10}l \times \frac{11}{10}b \times \frac{8}{10}h$$

$$\text{So, the required ratio} = \frac{11}{10} \times \frac{11}{10} \times \frac{8}{10} = 121 : 125$$

58. 2 Total visitors = 35,000

$$\text{Visitors who pay entrance fee} = \frac{a}{10} \times 35000 = 31,500$$

Let x be number of children who visited with entrance fee

$$\text{So, } 20x + 40(31,500 - x) = 9,50,000$$

$$\Rightarrow -20x + 12,60,000 = 9,50,000$$

$$\Rightarrow 20x = 3,10,000$$

$$\Rightarrow x = 15,500$$

59. 1 Let r cm be the radius of the new sphere

$$\text{So, } \frac{4}{3}\pi r^3 = \frac{4}{3}\pi(27 + 64 + 125)$$

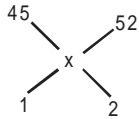
$$\Rightarrow r^3 = 216$$

$$\Rightarrow r = 6 \text{ cm}$$

60. 2 The sum of 30 observations = 4500
Correct sum of 30 observations = 4530

$$\text{So, the correct mean} = \frac{4530}{30} = 151$$

61. 3 Let x be the mean weight of the class.



$$\text{So } \frac{x-45}{52-x} = \frac{2}{1}$$

$$\Rightarrow x - 45 = 104 - 2x$$

$$\Rightarrow 3x = 149$$

$$\Rightarrow x = 49.66$$

Hence mean weight is nearest to 50.

62. 3 Required Mean = $\frac{2+4+6+\dots+20}{10}$

$$= \frac{\frac{10}{2}(22)}{10} = 11$$

63. 4 Since median = 16

$$\therefore \frac{x-2+x}{2} = 16$$

$$\Rightarrow 2x - 2 = 32$$

$$\Rightarrow x = 17$$

64. 1 Let the number be $10x + y$

$$\therefore 10x + y = 7(x + y)$$

$$\Rightarrow 3x = 6y$$

$$\Rightarrow x = 2y$$

$$\text{and } 10x + y - 9 = 10y + x$$

$$\Rightarrow 20y + y - 9 = 12y$$

$$\Rightarrow 9y = 9$$

$$\Rightarrow y = 1$$

$$\therefore x = 2$$

Hence, the required number = 21

65. 4 Let the original sum be Rs. x

$$\frac{1}{3}x \times 3 + \frac{1}{6}x \times 6 + \frac{1}{2}x \times 8 = 600$$

$$\Rightarrow x + x + 4x = 60000$$

$$\Rightarrow 6x = 60,000$$

$$\Rightarrow x = 10,000$$

66. 2 Let P be the sum of the money

$$\text{Now, } 102 = P \left(1 + \frac{4}{100} \right)^2 - P$$

$$\Rightarrow 102 = P \left(\frac{104}{100} \right)^2 - P$$

$$\Rightarrow 102 = \frac{104 \times 104}{10,000} P - P$$

$$\Rightarrow 1020000 = 816P$$

$$\Rightarrow P = \text{Rs } 1250$$

$$\text{So, simple Interest} = \frac{1250 \times 4 \times 2}{100} = \text{Rs. } 100$$

67. 1 $x^2 - y^2 - z^2 + 2yz + x + y - z$
 $= x^2 - (z - y)^2 + x + y - z$
 $= (x + y - z)(x + z - y) + (x + y - z)$
 $= (x + y - z)(x + z - y + 1)$

68. 4 $(a + b)^3 + (b + c)^3 + (c + a)^3$
 Now, $x^3 + y^3 + z^3 = 3xyz$ when $x + y + z = 0$
 Since $(a + b) + (b + c) + (c + a) = 2(a + b + c) = 2 \times 0 = 0$
 $\therefore (a + b)^3 + (b + c)^3 + (c + a)^3 = 3(a + b)(b + c)(c + a)$
 Therefore $(a + b)$ is a factor of the given expression.

69. 2 Let the original length and breadth be x units and y units.

$$\text{So, the original area} = xy \text{ unit}^2$$

$$\text{Now, the new area} = \frac{9}{10} \times \frac{11}{10} xy \text{ unit}^2$$

$$= \frac{99}{100} \text{ unit}^2$$

Hence area decreased by 1%.

70. Let the present ages of the father and the son be x years and y years respectively

$$\text{So, } x + y = 99$$

$$\Rightarrow 3x + 3y = 297 \quad \dots(1)$$

$$y = 4(y - 2x + 99)$$

$$\Rightarrow y = 4y - 8x + 396$$

$$\Rightarrow 8x - 3y = 396 \quad \dots(2)$$

Adding (1) and (2)

$$11x = 693 \Rightarrow x = 63 \text{ any } y = 36$$

Hence the required ratio = 4 : 7

71. 3 Let C.P. of the article be Rs. 100

then $x = \text{Rs. } 85$ and $y = \text{Rs. } 115$

$$\text{Hence, } \frac{y-x}{y+x} = \frac{115-85}{115+85} = \frac{30}{200} = 3 : 20$$

$$72.2 \quad \sqrt{x + \frac{x}{y}} = x\sqrt{\frac{x}{y}}$$

Squaring both sides.

$$\Rightarrow x + \frac{x}{y} = x^2 \left(\frac{x}{y} \right)$$

$$\Rightarrow 1 + \frac{1}{y} = \frac{x^2}{y}$$

$$\Rightarrow y + 1 = x^2$$

$$\Rightarrow y = x^2 - 1$$

- 73.3 As 15 is a factor of 195.
So, if we divided the same number by 15 the remainder

$$\text{will } \frac{47}{15} \equiv 2.$$

- 74.2 $a : b = 3 : 4$
 $b : c = 4 : 7$
 $\therefore a : b : c = 3 : 4 : 7$
Let $a = 3k$
 $b = 4k$
 $c = 7k$

$$\text{Now } \frac{a+b+c}{c} = \frac{14k}{7k} = 2$$

75. Wrong question

- 76.2 Let the distance between town A and town B be 120km.

$$\therefore \text{Total time taken} = 2 + 3 = 5 \text{ hours}$$

Hence, the average speed for the whole journey

$$= \frac{240}{5} = 48 \text{ km/h}$$

- 77.1 Let the total work be 96 units
So one man can do 1 unit in 1 day
Now, in three days 12 men can complete 36 units
So, remaining units = 60 units
Days remaining = 4

$$\text{So men required} = \frac{60}{4} = 15$$

Hence, 3 more men are required.

- 78.1 Let the work done by B in one day = 1 unit
So the work done by A in one day = 2 unit
Hence, total work = $18 \times 3 = 54$ units.

$$\text{So A alone can complete it in } \frac{54}{2} = 27 \text{ days.}$$

- 79.2 Let the total units to be filled be 120.
Units filled by pipe A in one hour = 5
Units filled by pipe B in one hour = 4

$$\text{Time taken when both are opened together} = \frac{120}{9}$$

$$= \frac{40}{3} \text{ hours.}$$

- 80.3 Let total capacity be 9 units.

$$\text{Water filled in 1 minute} = \frac{4}{9} \times 9 = 4 \text{ units.}$$

$$\text{So, 5 units can be filled in } \frac{5}{4} \text{ minutes.}$$

- 81.1 The statement can make sense only with the assumption that the yield of cotton was expected to increase after the introduction of improved variety of seeds.

- 82.4 Since the statement mentions that that the budgetary provision for the purpose of appointing additional faculty is no longer there therefore assumption I is valid. Assumption II is valid because the statement mentions that institute has changed its financial priorities.

- 83.3 Neither of the assumptions is relevant in the context of the statement. Both of them are outside the purview of the statement,

- 84.1 Only I is a relevant assumption because the statement mentions that an opportunity had been lost when the recommendations of Goswami Committee were rejected.

- 85.2 Assumption II is most obvious as the statement is based upon the assumption that director was supposed to look after the administration of the institute.

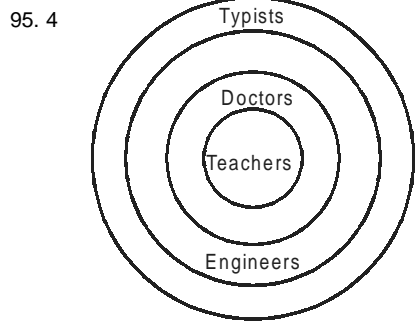
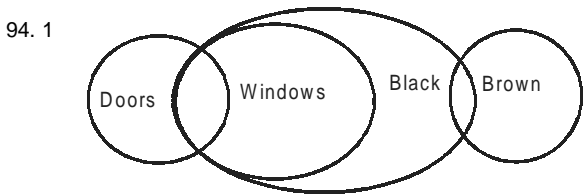
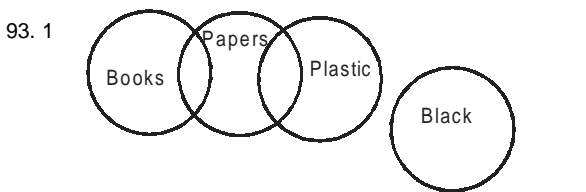
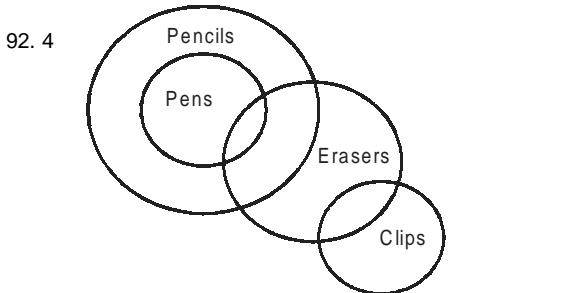
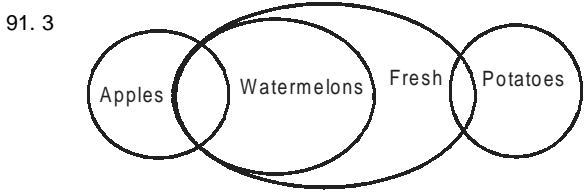
- 86.3 R cannot be operated at fourth place because if R is to be operated on any day V must be operated on that day after R and either S or U must be operated at last. So R can be operated only at first, second or third place.

- 87.2 Option (1) and (3) have Q as one of the program and if R is to be operated then V and one from S or U must be operated making list as R, W, V, one from S and U and one any other program but with Q, T must be operated. In option (4) V is not mentioned.

- 88.4 Option (4) could not be the set of programs because W, T, P and U four program sets are repeated from the previous day.

89. 3 Option (1) could not be the set of programs because P and V can not be operated on the same day.
 Option (2) could not be the set of programs because T is not being operated after Q is being operated.
 Option (4) could not be the set of programs because last program to be operated is neither S nor U.

90. 1 Q cannot be operated at second place because if R is operated at third place then fourth and fifth place programs must be V and one from S and U respectively. And if Q is to be operated then T must be operated after Q.



96. 1 The problem can be solved if airlines and air cargo agents work together. Hence, I is a suitable course of action. II is incorrect as this course of action, on its own, will not improve the situation.

97. 1 I is a suitable course of action as India should implement the action points of this conference and derive benefit from it. II is not valid because organizing a conference will not solve any purpose.

98. 2 I is incorrect as starting more schools will not have any effect on student absenteeism. II will help find out the reasons for absenteeism, which will be instrumental in solving the problem.

99. 1 I is correct because efforts to increase the agricultural production are required to boost India's share in global agricultural trade. II is incorrect, as it will have a negative effect on the Indian economy.

100. 2 I is incorrect because it will restrict the development of tourist places thereby not benefiting Indian tourism. II is correct, given the potential of Indian tourism described in the statement.

101. 4 Statement 'P' does not tell anything about L. Statement 'Q' tells only that T and R are siblings and children of L. Combining P and Q we can conclude that L has three daughters.

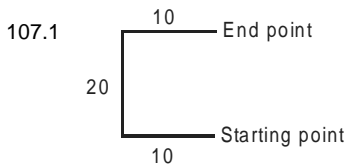
102. 3 Even after combining both the statements we can not tell who is the brother of C.

103. 1 From statement 'P'
 $50\% \text{ of } 1000 = \text{Telugu Novels}$
 $\Rightarrow \text{Telugu Novels} = 500.$
 So, from statement 'P' we can tell the number of Telugu Novels.

104. 3 Neither statement tells about the date of expiry of the licence.
So, the exact date before which licence must be renewed can not be found out even after combining the statements.

105. 2 From statement 'Q'
Let side of the square playground be a meters.
So, $a^2 = 484$
 $\Rightarrow a = 22$ m.
Hence perimeter = $4 \times 22 = 88$ m.

106. 1 The Lung, the heart and the kidney belong to the class of internal organs. The ear does not belong to this class.



So, he is 90 metres towards North.

108. 4 Option 4 strengthens the association between anxiety and ulcer by providing evidence that a very high percentage (65%) of ulcer patients suffer from anxiety as well. All the other options are irrelevant to the argument presented in the question.

109.1 It can be clearly inferred that 50 to 85 % of studies/ literature on managerial stress use role conflict and ambiguity as standard variables. Hence, the relationship between the studies and these variables is obvious.

110.4 From given information following can be concluded

Height, tallest first $\begin{cases} AB \\ CDE \end{cases}$

If we use option 4
then order will be CDE AB
Hence, C is the tallest.

111.3 Either one of the two reasons must be there because of which the militants were not found, despite the thorough search.

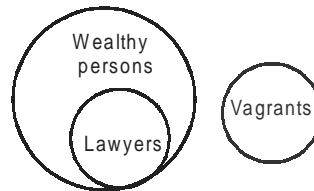
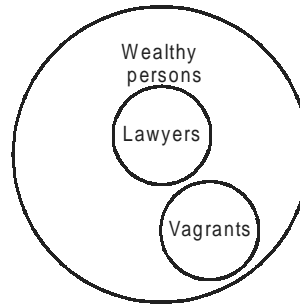
112.2 RII is correct. RII clearly brings out why those who kept Chief Secretary in good humour were not transferred. RI is not relevant to the statements

113.1 RI can be the reason for the party's loss in certain areas. Because the workers play a major role in elections if they are not motivated and lack enthusiasm the party may lose elections.

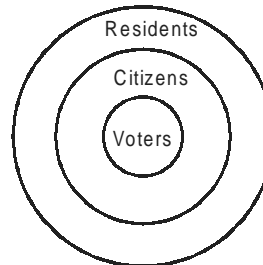
114.3 Either one of the two reasons must be there to result in the fall of buildings.

115.4 RI is incorrect as the law need not be very considerate and still the court will summon the policemen. RII is incorrect as the statement itself talks about the possibility of a criminal dying in police custody.

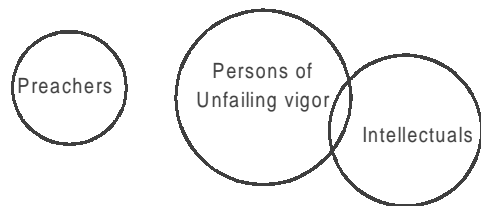
116*. Both 2 and 4 are correct.



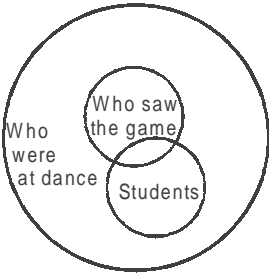
117. 1



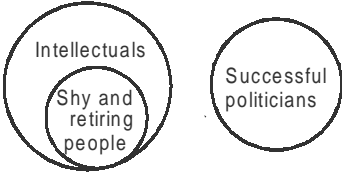
118. 2



119. 1



120. 2



121. 3

122. 3

123. 1

124. 2

125. 4

126. 2

127. 1

128. 4

129. 3

130. 2

131. 2

132. 3

133. 3

134. 4

135. 3

136. 2

137. 2

138. 1

139. 3

140. 1

141. 4

142. 3

143. 1

144. 3

145. 4

146. 3

147. 2

148. 1

149. 4

150. 1

151. 3

152. 2

153. 2

154. 1

155. 3

156. 1

157. 2

158. 4

159. 2

160. 1