

## Previous Years' Paper (Solved)

# Jawahar Navodaya Vidyalaya Entrance Exam, 2006

## Section-I

### MENTAL ABILITY

#### Part-I

**Directions (Qs. No. 1 to 10):** In each of the questions, four figures (A), (B), (C) and (D) are given. There are three figures which are similar in any sense except one. Find out the odd figure and answer in English letter in the given box of attached answer book in front of each question.

- |    |  |  |  |  |
|----|--|--|--|--|
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| 5. |  |  |  |  |
| 6. |  |  |  |  |

- |     |  |  |  |  |
|-----|--|--|--|--|
| 7.  |  |  |  |  |
| 8.  |  |  |  |  |
| 9.  |  |  |  |  |
| 10. |  |  |  |  |

#### Part-II

**Directions (Qs. No. 11 to 20):** In each of the question there is a problem figure on the left side and on right side, there are 4 answer figures i.e., (A), (B), (C) and (D). Find out that figure which is exactly similar with the problem figure and the correct answer should be written in English letter in the given box in front of each question. For answering the question, separate attached answer book is provided.

Problem Figure	Answer Figures			

Problem Figure	Answer Figures	Problem Figure	Answer Figures
13.	(A) (B) (C) (D)	21.	(A) (B) (C) (D)
14.	(A) (B) (C) (D)	22.	(A) (B) (C) (D)
15.	(A) (B) (C) (D)	23.	(A) (B) (C) (D)
16.	(A) (B) (C) (D)	24.	(A) (B) (C) (D)
17.	(A) (B) (C) (D)	25.	(A) (B) (C) (D)
18.	(A) (B) (C) (D)	26.	(A) (B) (C) (D)
19.	(A) (B) (C) (D)	27.	(A) (B) (C) (D)
20.	(A) (B) (C) (D)	28.	(A) (B) (C) (D)

**Part-III**

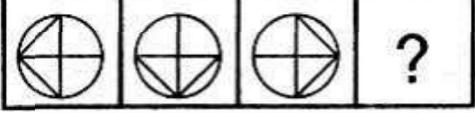
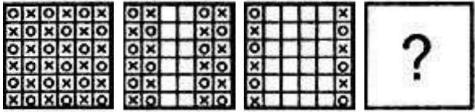
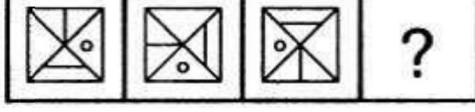
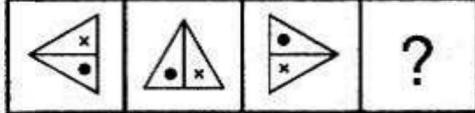
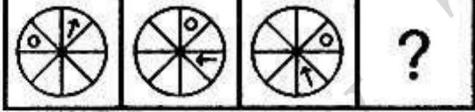
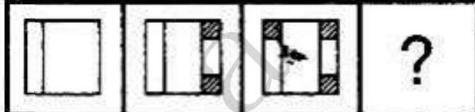
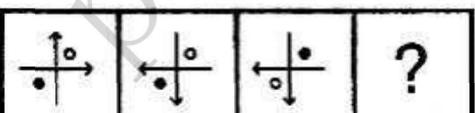
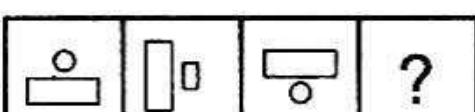
**Directions (Qs. No. 21 to 30):** In each of the question, there is a problem figure towards the left side of a line. One part of this figure is missing. Observe Answer figure (A), (B), (C), (D) to the right of line. Find out that figure which complete the portion of embedded part of problem figure without changing its direction and this part should complete the pattern of problem figure. Write down answer in English letter in the given box in front of each question in attached answer book.

29.	(A) (B) (C) (D)
30.	(A) (B) (C) (D)

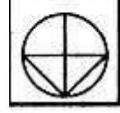
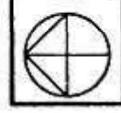
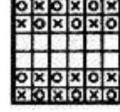
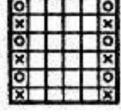
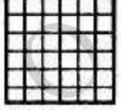
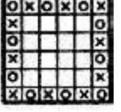
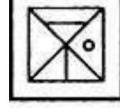
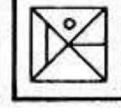
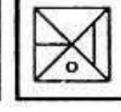
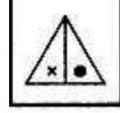
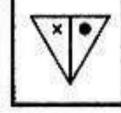
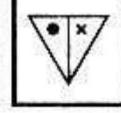
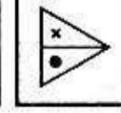
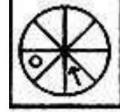
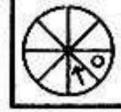
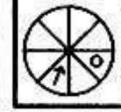
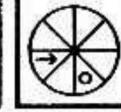
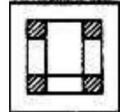
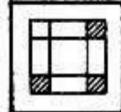
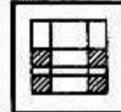
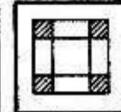
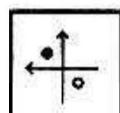
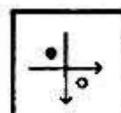
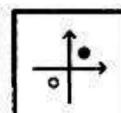
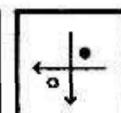
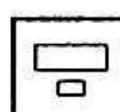
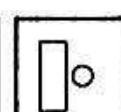
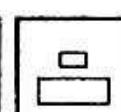
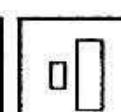
## Part-IV

**Directions (Qs. No. 31 to 40):** In each of these questions, there are three problem figures towards the left side of line and fourth place is vacant. These probem figures are in a series. Find out the proper figure from the answer figures which is right side of the line. This figure completes the series. By selecting the correct answer, fill this answer in English letter in a given box in front of each question in the attached answer book.

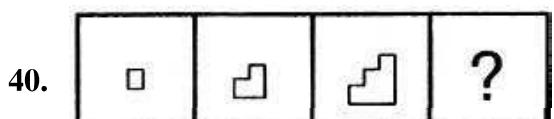
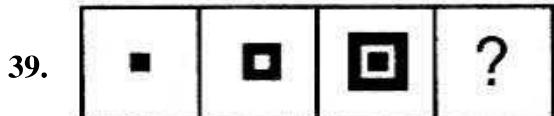
**Problem Figures**

31.  ?
32.  ?
33.  ?
34.  ?
35.  ?
36.  ?
37.  ?
38.  ?

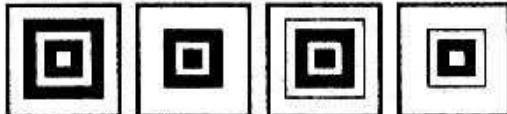
**Answer Figures**

- (A) 
- (B) 
- (C) 
- (D) 
- (A) 
- (B) 
- (C) 
- (D) 
- (A) 
- (B) 
- (C) 
- (D) 
- (A) 
- (B) 
- (C) 
- (D) 
- (A) 
- (B) 
- (C) 
- (D) 
- (A) 
- (B) 
- (C) 
- (D) 
- (A) 
- (B) 
- (C) 
- (D) 
- (A) 
- (B) 
- (C) 
- (D) 

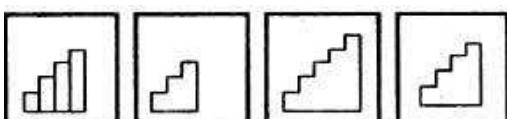
## Problem Figures



## **Answer Figures**



(A)                  (B)                  (C)                  (D)

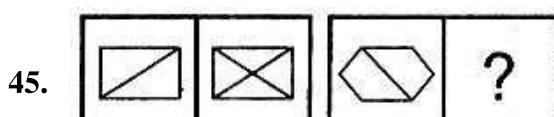
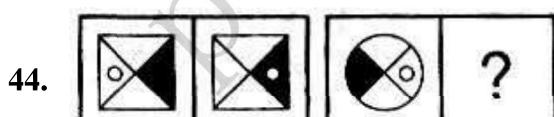
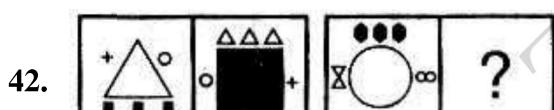
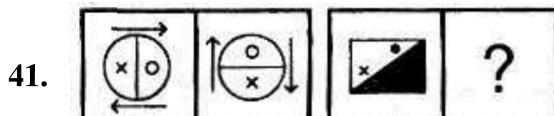


(A)                  (B)                  (C)                  (D)

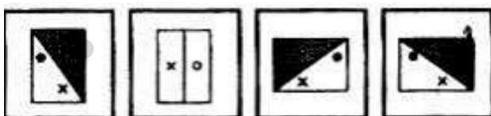
**Part-V**

**Directions (Qs. No. 41 to 50):** In each of the question, there is a sign of question mark (?) after three problem figures for fourth figure. There is a relation in some respect between first two problem figures. The same relationship should also be adopted between third and fourth problem figures. Find out the answer figure from the given four figures that answer should be rightly resembled. By selecting the right answer, fill the answer in English letter in the given box in front of each question in attached answer book.

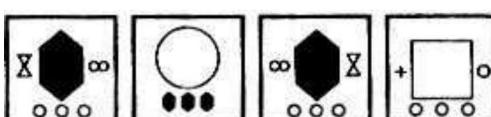
## Problem Figures



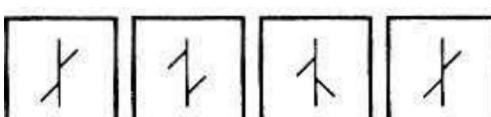
## Answer Figures



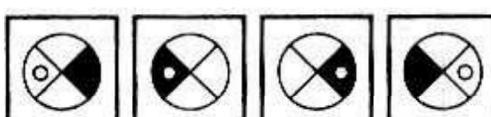
(A)                  (B)                  (C)                  (D)



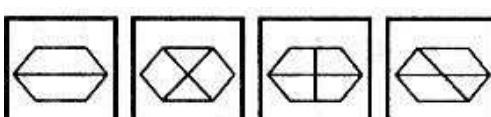
(A)              (B)              (C)              (D)



(A)                  (B)                  (C)                  (D)

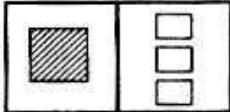
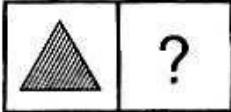
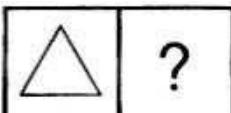
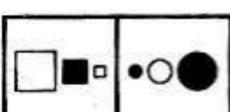
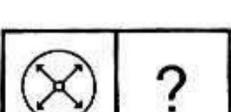


(A)                  (B)                  (C)                  (D)

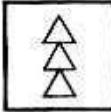
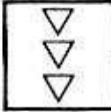
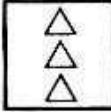
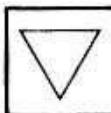
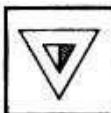
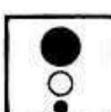
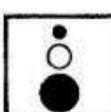
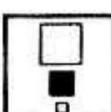
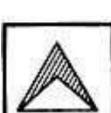
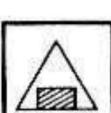
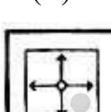
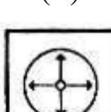
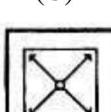
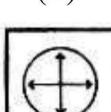


(A)                  (B)                  (C)                  (D)

**Problem Figures**

46.  
47.  
48.  
49.  
50.  

**Answer Figures**

- (A)  (B)  (C)  (D) 
- (A)  (B)  (C)  (D) 
- (A)  (B)  (C)  (D) 
- (A)  (B)  (C)  (D) 
- (A)  (B)  (C)  (D) 

**Part-VI**

**Directions (Qs. No. 51 to 60):** In each of the questions, there is a part towards the left side of line and on right side of line there is a remaining part of that square given in four figures i.e., (A), (B), (C) and (D). Find out that figure from the figures of right side which can complete the square. Find out the answer and fill in English letter in the given box in front of each question in attached answer book.

**Problem Figure**

**Answer Figures**

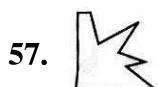
51.  (A)  (B)  (C)  (D) 
52.  (A)  (B)  (C)  (D) 

**Problem Figure**

**Answer Figures**

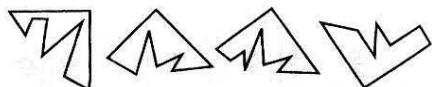
53.  (A)  (B)  (C)  (D) 
54.  (A)  (B)  (C)  (D) 
55.  (A)  (B)  (C)  (D) 
56.  (A)  (B)  (C)  (D) 

**Problem Figure**

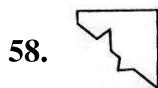


57.

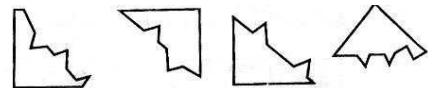
**Answer Figures**



- (A) (B) (C) (D)



58.



- (A) (B) (C) (D)

**Problem Figure**

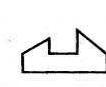


59.

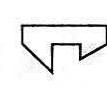
**Answer Figures**



(A)



(B)



(C)



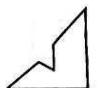
(D)



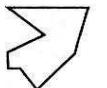
60.



(A)



(B)



(C)

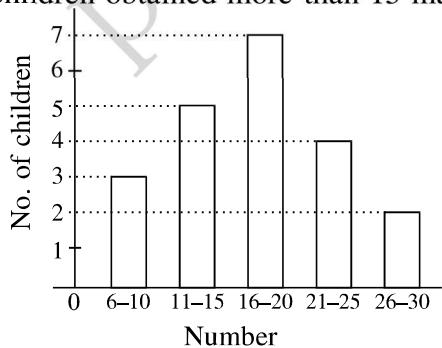


(D)

## Section-II : Arithmetic

**Directions (Qs. No. 61 to 80):** There are four probable answers to each question, termed as A, B, C and D. Out of these four answers, only one is correct. Choose the correct answer.

61. Joseph can swim 150 m in 60 seconds. What is his speed in km/hour?  
A. 9      B. 90  
C. 900      D. 9000
62. At a deposit of Rs. 2,000 a bank returns Rs. 3,000 after 5 years. What is the percentage rate of interest?  
A. 20%      B. 15%  
C. 10%      D. 5%
63. The perimeter of a rectangle is 40 cm. What would be its dimensions if its area be the maximum?  
A. 1, 19      B. 4, 10  
C. 5, 10      D. 10, 10
64. Volume of a cuboid is 36000 cm<sup>3</sup>. What would be its dimensions if its area be the maximum?  
A. 20 cm      B. 30 cm  
C. 40 cm      D. 50 cm
65. Using the graph chart, find out how many children obtained more than 15 marks?



- A. 3      B. 8  
C. 13      D. 15
66. What is the least even number to be formed with 7, 0, 1, 2 and 3?  
A. 10372      B. 10237  
C. 73210      D. 12370
67. Which of the following is an indivisible number?  
A. 91      B. 93  
C. 95      D. 97
68. A truck can carry 475 bags of cement. How many trucks will be needed to carry 58425 bags of cement?  
A. 57,950      B. 58,050  
C. 58,900      D. 123
69. What is the least number of three digits perfectly divisible by 4, 6, 8 and 12?  
A. 104      B. 120  
C. 240      D. 984
70. Bells of three churches toll at the interval of 10, 12 and 15 minutes, respectively. If they start to toll together at 8.30 a.m., when will they toll together again?  
A. 9.00 a.m.      B. 9.30 a.m.  
C. 10.00 a.m.      D. 12.00 noon
71. The value of  $\left(\frac{3}{5} + \frac{1}{5} - \frac{3}{10}\right) \times \left(\frac{36}{45} \div \frac{16}{5}\right)$  is  
A.  $\frac{1}{8}$       B.  $\frac{1}{20}$   
C.  $\frac{32}{25}$       D.  $\frac{64}{125}$

72. What would be 7.5% of Rs. 2000?  
A. Rs. 1.50      B. Rs. 15.00  
C. Rs. 150.00      D. Rs. 1500.00
73. For what value of \* the number  $56 * 891$  will be perfectly divisible by 11?  
A. 1      B. 3  
C. 5      D. 7
74. What is the sum of 13.3, 1.33 and 1.0333?  
A. 16.6060      B. 16.3066  
C. 16.3333      D. 16.6666
75. What is the least number which is when added to 52,792, the new number becomes perfectly divisible by 15?  
A. 6      B. 7  
C. 8      D. 15
76. What would be the approximate product of 2.5 and 149.93?  
A. 300      B. 375  
C. 447      D. 450
77. What would be the next row of the numbers?  
A. 2, 4, 8  
B. 3, 9, 27  
C. 4, 16, 64  
D. 5, 10, 15
78. How many bottles of 350 millilitre volume capacity be filled with 7 litre oil?  
A. 2      B. 20  
C. 200      D. 245
79. A man purchased some eggs at the rate of Rs. 20 per dozen and sold at the rate of Rs. 2 per egg. What is the percentage of profit?  
A. 4      B.  $16\frac{2}{3}$   
C. 18      D. 20
80. A boy sold his old text books for Rs. 64 at a loss of 20%. What was the cost price of the text books?  
A. Rs. 78.80      B. Rs. 80  
C. Rs. 100      D. Rs. 120

### Section-III : Language

**Directions (Qs. No. 81 to 100):** There are four passages in this section. Each passage is followed by five questions. Read each passage carefully and answer the questions that follow. For each question for probable answers bearing letters (A), (B), (C) and (D) are given. Only one out of these is correct. You have to choose the correct answer and indicate your correct response.

#### Passage-1

Fishing is my favourite sport. I often fish for hours without catching anything. But this does not worry me. Some fishermen are unlucky. Instead of catching fish, they catch old boots and rubbish. I am even less lucky. I never catch anything—not even old boots. After having spent whole mornings on the river, I always go home with an empty bag. ‘You must give up fishing!’ my friends say, ‘It’s a waste of time.’ But they don’t realize one important thing. I’m not really interested in fishing. I am only interested in sitting in a boat and doing nothing at all.

81. Some fishermen are unlucky because—  
A. They never catch fish

- B. Fishing is not their favourite sport  
C. They fish for hours together  
D. Sometimes they catch old boots and rubbish instead of fish
82. Fishing is the writer’s favourite sport as he—  
A. Always catches fish  
B. Finds it a funny sport  
C. Enjoys doing nothing while sitting in a boat  
D. Collects old boots
83. The writer is not a good fisherman because—  
A. He never catches anything  
B. He only catches old boots and rubbish  
C. He goes alone  
D. He spends hours fishing
84. The bag that the writer carries home is—  
A. Empty  
B. Old  
C. Full of fish  
D. Full of old boots and rubbish
85. The writer’s friends ask him to give up fishing because—

- A. They are angry with him
- B. They want him to try another sport
- C. They want his company
- D. They think he is only wasting his time

### Passage-2

When Kalpana Chawla was a student at Tagore Bal Niketan in Karnal, she used to fill her drawing-books with sketches of aeroplanes. After High School, her parents were keen that she should study Medicine but she preferred Engineering. She chose Aeronautics to study more about aeroplanes. She was then only seventeen. Eighteen years later, she has become the first Indian woman and the first from any Asian country to travel in space. This happened on November 19, 1997—when she was one of the 6-member crew to get into the space shuttle, Columbia. It was a 15-day adventure in space. “This is a proud moment for India”, she said just before her launch into space. Kalpana is a Black Belt in Karate, an expert swimmer, a Bharat Natyam artist and a poet who once wrote about the gypsies of Karnal.

- 86. Which of the following statements about Kalpana Chawla is wrong?
  - A. She spent her childhood in Karnal
  - B. She wanted to study medicine
  - C. She is the first Indian woman space traveller
  - D. She is an expert swimmer
- 87. Kalpana Chawla travelled in space in a vehicle named—
  - A. Nasa
  - B. Columbia
  - C. Gypsy
  - D. None of the above
- 88. The number of people who accompanied Kalpana on her space travelling were—
  - A. Three
  - B. Seven
  - C. Five
  - D. Six
- 89. “This is a proud moment for India”. “This” here refers to the day—
  - A. Kalpana got admission in an Engineering College
  - B. Kalpana was selected for space travel
  - C. Kalpana was seventeen years old
  - D. Kalpana travelled in space
- 90. The word that means—study of flying aircrafts—is—

- A. Engineering
- B. Aeronautics
- C. Medicine
- D. Space

### Passage-3

Once a farmer lived in a village. He was old and he had five sons. The sons were lazy and did nothing. Once he called them and said, “My dear sons, I may die some day. All the gold I have is yours. It is hidden in the field.”

After some time, the farmer died. The obedient sons began to look for the treasure. They carefully dug up the field from one end to the other but could not find any treasure.

One brother said, “We have taken so much trouble in digging the field, we should sow it.”

This they did. In good time, there grew a rich crop. The sons remembered their father's words and understood the meaning of his words. Certainly they had found the hidden treasure.

- 91. “I may die some day”  
‘may’ here refers to—
  - A. A suggestion
  - B. A request
  - C. A possibility
  - D. Wish and hope
- 92. The sons dug the field—
  - A. To grow a crop
  - B. To scatter seeds on the ground
  - C. To get rid of their laziness
  - D. To find gold
- 93. ‘This they did’. ‘This’ here refers to—
  - A. Obeying their father
  - B. Digging the field
  - C. Sowing corn
  - D. Finding gold
- 94. The farmer wanted his son to be—
  - A. Obedient
  - B. Hardworking
  - C. Strong
  - D. Good farmers
- 95. The passage shows that the farmer was—
  - A. Wise
  - B. Honest
  - C. Rich
  - D. Hard working

### Passage-4

Long ago there lived a pair of crows in a big tree in a forest. Other animals often rested under that tree. A black snake lived in a hole by the tree's roots. The crows had made a nest and the she-crow laid eggs in it. Soon the eggs hatched and four baby crows came out. One day when the crows were away

to bring food for the baby crows, the snake went upto the nest and ate the little crows. When the crows came back with food, they saw the snake entering the hole and found the nest empty. This made them very sad.

After some months, the same thing happened again. Therefore, they thought, if they lived there, the snake would eat up their children every time. So they decided to leave that place.

**96.** The crows had made the nest—

- A. To live in it comfortably
- B. To lay their eggs in it
- C. To save their eggs from enemies
- D. For the baby crows to live in

**97.** In the absence of the crows, the snake went the nest to—

- A. Look after the baby crows
- B. Eat up the baby crows
- C. Feed the baby crows

- D. Play with the baby crows
- 98.** The crows were sad because—
- A. They could do nothing against the snake
  - B. They had nobody to help them
  - C. They had to leave their home
  - D. They had lost their babies
- 99.** The crows decided to go elsewhere because—
- A. The tree was too big for them
  - B. Other animals often took rest under the tree
  - C. They were not safe there
  - D. The snake would eat up their babies every time
- 100.** Which quality of the crows is shown by the story?
- A. Cowardliness
  - B. Fear for the future
  - C. Unfriendliness for the snake
  - D. Love for change of place

## ANSWERS

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
C	B	B	C	D	C	D	A	B	C
<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>
D	A	B	C	D	B	B	B	A	C
<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>
C	A	C	B	C	B	D	C	D	D
<b>31</b>	<b>32</b>	<b>33</b>	<b>34</b>	<b>35</b>	<b>36</b>	<b>37</b>	<b>38</b>	<b>39</b>	<b>40</b>
B	C	C	B	C	A	C	D	A	D
<b>41</b>	<b>42</b>	<b>43</b>	<b>44</b>	<b>45</b>	<b>46</b>	<b>47</b>	<b>48</b>	<b>49</b>	<b>50</b>
A	C	B	B	B	C	D	D	B	B
<b>51</b>	<b>52</b>	<b>53</b>	<b>54</b>	<b>55</b>	<b>56</b>	<b>57</b>	<b>58</b>	<b>59</b>	<b>60</b>
A	D	D	A	B	C	B	B	C	B
<b>61</b>	<b>62</b>	<b>63</b>	<b>64</b>	<b>65</b>	<b>66</b>	<b>67</b>	<b>68</b>	<b>69</b>	<b>70</b>
A	C	D	B	C	A	D	D	B	B
<b>71</b>	<b>72</b>	<b>73</b>	<b>74</b>	<b>75</b>	<b>76</b>	<b>77</b>	<b>78</b>	<b>79</b>	<b>80</b>
A	C	A	D	C	B	C	B	D	B
<b>81</b>	<b>82</b>	<b>83</b>	<b>84</b>	<b>85</b>	<b>86</b>	<b>87</b>	<b>88</b>	<b>89</b>	<b>90</b>
D	C	A	A	D	B	B	C	D	B
<b>91</b>	<b>92</b>	<b>93</b>	<b>94</b>	<b>95</b>	<b>96</b>	<b>97</b>	<b>98</b>	<b>99</b>	<b>100</b>
C	D	B	A	A	B	B	D	D	B

## SOME SELECTED EXPLANATORY ANSWERS

1. All the figures of (A), (B) and (D) are divided into three parts while in (C) it has four parts.
2. Except figure (B), the triangles of all the figures (A), (C) and (D) containing dot are alike.
3. Figures (A), (B) and (D) are equally divided into four parts but figure (C) are not.
4. All figures of (A), (B) and (D) are in increasing order while in (C) they are in decreasing order.

5. In figure (D), the two lines do not intersect to each other while in figure (A), (B) and (C) they intersect at a point.
6. In all the figures of (A), (B) and (D), the direction of arrows are indicating towards the same side while in figure (C) the arrows are indicating on the opposite side.
7. All the figures of problem figures (A), (B) and (C) are following a simple pattern like, circle, square, triangle and cross while in problem figure (D), they are in different pattern
8. One of the two arrows of problem figures of (B), (C) and (D) has circle at one end and triangle on the other; the other arrow has squares at both ends with a little bit difference in its position. But in figure (A), the arrows have different structures at both ends.
9. The shaded part of each problem figure (A), (C) and (D) has three sides (curved side in case of circle) while in figure (B), it has four sides.
10. The circle is vertically opposite to the shaded portion in all the problem figures (A), (B) and (D) while in figure (C), it is different.
11. Only figure (D) matches the problem figure, because all the vertical lines are same in all respect.
12. The right portion of the answer figure (A) is shaded and so does the problem figure.
13. The alternate exterior parts of the answer figure (B) are shaded which is exactly similar to the problem figure.
14. The shaded circle of the answer figure (C) is on the left side and plane circle on the right and so does the problem figure. But all the other have different structures.
15. The extreme left and extreme right of the problem figure are shaded and a dot is slightly above the base on the left and so does the answer figure (D).
16. Only the directions of the two arrows of the problem figure has given the distinction amongst the answer figure. Only answer figure (B) is exactly similar to the problem figure.
17. The similarity in the direction of the arrows at the top and the black dot on the centre of the problem figure to the answer figure (B) is point of concern.
18. The answer figure (B) is similar to the problem figure in all respect whether it is direction of arrows, position of circles or position of shaded circle and shaded small triangle.
19. The direction of the arrow from the centre of the circle as well as from the vertex of triangle showing upward is the distinguishing fact of all the answer figures. So answer figure (A) is similar to the problem figure.
20. Answer figure (C) is similar to the problem figure because it has shaded inverted cone above of which a shade square on the left and a square on the right. On the base there are two circles, plane on the left and shaded on the right and so does the problem figure.
21. Only the answer figure (C) will complete the problem figure because on addition, it will give a complete shape.
22. To keep all the cross (x) of the problem figure on its diagonal and the rest on the other answer figure (A) is the required result.
23. Answer figure (c) is the required answer on embedding (C) in the problem figure, the diagonal will complete and so does the vertical lines.
24. On putting the answer figure (B) in the problem figure, a circle and two squares inside it can be formed. So answer figure (D) is the right choice.
25. On putting the answer figure (C) in problem figure, we obtain the rombus and the complete vertical line which is the required result.
26. Answer figure (B) is the required result because on putting it in the problem figure all the parallel lines and a diagonal are obtained.
27. Keeping in mind the direction of the arrows and the completion of diagonal of problem figure, answer figure (D) is the required result.
28. To complete the problem figure, answer figure (C) is the correct answer.
29. Keeping in mind the problem figure, we see that there is a rohombus at the central part with shadow behind it. So, answer figure (D) is the correct answer to complete the figure.

30. The missing part of problem figure is so that it must complete a circle as-well-as a diagonal. So answer figure (D) is the correct answer.
31. Triangle of semi-circle rotates in anti-clockwise direction with an angle of  $90^\circ$  in each step. Answer figure (B) will be the last stage.
32. There are 12 vacant squares in second stage and 24 vacant squares in the third stage, so at the last stage there will be 36 vacant squares, i.e., all the squares will be vacant. So answer figure (C) is the correct answer.
33. The small circle is rotating in clock-wise direction while the line joining the intersecting point of the diagonals to the side of the square and line joining the two diagonals at any point other than the intersecting point are moving in anti-clockwise direction. Thus answer figure (C) is the correct answer.
34. The triangle is rotating in clock-wise direction with an angle of  $90^\circ$ . Answer figure (B) is the final stage.
35. The small circle and arrow in the problem figure at first moves two places ahead in clock-wise direction and then one place further to reach the third stage. So at the last stage the circle and the arrow will move one place more to attain the answer figure (C).
36. There are addition of two shaded squares at second step and one at the third step. So with the addition of one more shaded square, the problem figure will reached the final step. Answer figure (A) will be the correct answer.
37. At first step of the problem figures only the directions of the arrows are changing to reach the second step. Now the circles are altering their positions and reached the third step. Following this order, arrows will change their direction again and will take the shape of the answer figure (C).
38. Rectangle of the problem figure is rotating in clock-wise direction with an angle of  $90^\circ$  in each step. Further circle is changing into smaller rectangle and so does the smaller rectangle into a circle. In this way, the final step will be the answer figure (D).
39. The size of the shaded square is increasing with the introduction of a new square at the centre. Further a shaded square is introduced at the third step with the increase of the rest. Following this pattern, answer figure (A) will be the correct answer.
40. There is a increase of one step in each stage. So at the last and find stage, there will be three steps. Thus answer figure (D) will be the correct answer.
41. The first problem figure rotates in anti-clockwise direction with an angle of  $90^\circ$  to attain the problem figure second. So, the third problem figure will also rotate in anti-clockwise direction with an angle of  $90^\circ$  and will gain the answer figure (A).
42. Triangle has changed into a shaded square with the changed shaded squares into triangles above it. Plus sign (+) and zero (0) have changed their position too. Following this pattern, circle will change into a shaded hexagon with three circles below it with changed positions of infinity ( $\infty$ ) and X. So, answer figure (C) is the correct answer.
43. Second figure forms the mirror image of the first of the problem figures. So, answer figure (B) is correct answer for third problem figure.
44. Small circle is embedded inside the shaded triangle to the opposite of it in the second problem figure. So, on embedding the circle opposite to its shaded sector, answer figure (B) is obtained.
45. In the second problem figure one diagonal is increased. So in the fourth problem figure, one diagonal must increase. Thus, answer figure (B) is the correct answer.
46. A shaded rectangle is divided into three smaller rectangle on above the other. According to this pattern, the shaded triangle will be divided into three smaller triangle one above the other.
47. A smaller circle with half it is shaded is introduced at the centre of the circle in the second problem figure. Following this pattern, a smaller triangle with half of it is shaded will be introduced to the fourth problem figure. Thus answer figure (D) is the correct answer.

48. The greatest square has changed into a shaded greatest circle from extreme last, the central shaded square into a smaller circle, and the smallest square has changed into a shaded smallest circle. Following this pattern answer figure (D) will be the required answer.
49. In the problem figure, shaded triangle has changed into a shaded pentagon. So, answer figure (B) is the correct answer.
50. The lines with arrows at both of its ends have changed from diagonal positions to lines indicating the mid-points of the square in the second problem figure. Following this pattern answer figure (B) is the correct answer.

61. Speed of swimming =  $\frac{150}{60}$  m/s

$$\begin{aligned} &= \frac{150}{60} \\ &= \frac{1000}{60} \\ &= \frac{150}{1000} \times \frac{60 \times 60}{60} \text{ km/hour} \\ &= 9 \text{ km/hour} \end{aligned}$$

62.  $A = \text{Rs. } 3000$ ,  $P = \text{Rs. } 2000$ ,  $t = 5$  yrs.,  $r = ?$   
Simple Interest =  $A - P$

$$\begin{aligned} &= 3000 - 2000 \\ &= \text{Rs. } 1000 \end{aligned}$$

$$\begin{aligned} \text{Rate of interest} &= \frac{\text{S.I.} \times 100}{P \times t} \\ &= \frac{1000 \times 100}{2000 \times 5} \\ &= 10\% \end{aligned}$$

63. The perimeter of a rectangle = 40 cm  
But the perimeter of the rectangle =  $2(l + b)$   
 $\Rightarrow 2(l + b) = 40$

$$\therefore l + b = \frac{40}{2} = 20$$

The area of the rectangle =  $l \times b$

Since the area of the rectangle is maximum, the difference between the sides will be least. In the case, rectangle will become a square each of whose sides is 10 cm.

64. Volume of a cuboid =  $l \times b \times h$   
 $\Rightarrow l \times b \times h = 36000$  (given)

But  $b = 30$  cm and  $h = 40$  cm  
So,  $l \times 30 \times 40 = 36000$

$$\begin{aligned} \therefore l &= \frac{36000}{30 \times 40} \\ &= 30 \text{ cm} \end{aligned}$$

65. No. of children who obtained more than 15 marks =  $7 + 4 + 2$   
= 13
66. The least even number to be formed with 7, 0, 1, 2 and 3 = 10372
67. 97 is a prime number so it is divisible only by 1 and 97 itself.
68. No. of bags carried by a truck = 475  
Total no. of bags = 58425

$$\therefore \text{No. of trucks} = \frac{58425}{475} = 123$$

69. LCM of 4, 6, 8 and 12 =  $2 \times 2 \times 3 \times 2 = 24$

2	4, 6, 8, 12
2	2, 3, 4, 6
3	1, 3, 2, 3
	1, 1, 2, 1

Thus, the required no. of three digits =  $24 \times 5$   
= 120

70. LCM of 10, 12 and 15 =  $2 \times 2 \times 3 \times 5 = 60$

2	10, 12, 15
5	5, 6, 15
3	1, 6, 3
	1, 2, 1

They will toll together after 60 minutes,  
i.e., They will toll at 8.30 a.m. + 1 hour  
= 9.30 a.m.

$$\begin{aligned} 71. \text{The value of } &\left( \frac{3}{5} + \frac{1}{5} - \frac{3}{10} \right) \times \left( \frac{36}{45} \div \frac{16}{5} \right) \\ &= \left( \frac{6+2-3}{10} \right) \times \left( \frac{36}{45} \times \frac{5}{16} \right) \\ &= \frac{5}{10} \times \frac{1}{4} \\ &= \frac{1}{8} \end{aligned}$$

72. 7.5% of Rs. 2000 =  $\frac{7.5}{100} \times 2000 = \text{Rs. } 150.0$

73. Any number is divisible by 11 if the difference of the sum of the number at even and odd places is equal to zero i.e., the sum of the number at even place =  $9 + \star + 5 = 14 + \star$   
 And, the sum of the number at odd places =  $1 + 8 + 6 = 15$   
 $\therefore 15 - 14 - \star = 0$   
 $\star = 1$

74.

13.3	
1.33	
$+ 1.0333$	
<hr/>	
15.6633	

75.

15)	52792	(3519
$\frac{45}{77}$		
$\frac{75}{29}$		
$\frac{15}{142}$		
$\frac{135}{\times 7}$		

Thus required least number =  $15 - 7 = 8$

76. The product of 2.5 and 149.93  
 $= 2.5 \times 149.93$   
 $= 374.825$   
 $\approx 375$  (approx.)

77. 2, 4 ( $= 2 \times 2$ ), 8 ( $= 4 \times 2$ )  
 3, 9 ( $= 3 \times 3$ ), 27 ( $= 9 \times 3$ )  
 4, 16 ( $= 4 \times 4$ ), 64 ( $= 16 \times 4$ )  
 on this pattern the next row will be.  
 5, 25 ( $= 5 \times 5$ ), 125 ( $= 25 \times 5$ )

78. Volume = litres  
 $= 7 \times 1000$  millilitres

No. of bottles of 350 millilitre of volume

$$= \frac{7 \times 1000}{350}$$

$$= 20$$

79. C.P. of 12 eggs = Rs. 20  
 S.P. of 12 eggs =  $2 \times 12 = \text{Rs. } 24$   
 Profit = S.P. - C.P.  
 $= 24 - 20$   
 $= \text{Rs. } 4$

$$\therefore \text{Profit \%} = \frac{\text{Profit}}{\text{CP}} \times 100$$

$$= \frac{4}{20} \times 100$$

$$= 20\%$$

80. Let the cost price of the text books be  $x$  so.  
 $x - 20\% \text{ of } x = 64$

$$\Rightarrow x - \frac{20}{100} \times x = 64$$

$$\Rightarrow x - \frac{x}{5} = 64$$

$$\Rightarrow \frac{4}{5}x = 64$$

$$\therefore x = \frac{64 \times 5}{4}$$

$$= \text{Rs. } 80$$