



CREST Teacher Reasoning Olympiad (CTRO)

Sample Paper

Pattern and Marking Scheme

Stage	Topic/Section	No. of Questions	Marks per Question	Total Marks
For Stage IV (Grades 9-10)	Logical Reasoning	30	3	90
	Achiever's Section	20	6	120
Grand Total		50		210

The total duration of the exam is 60 minutes.

Note: For every incorrect answer, there's a penalty of 1/3rd of the total marks allotted to that question.

Syllabus

Series Completion, Analogy and Classification, Coding-Decoding, Blood Relations, Puzzle Test, Sequential Output Tracing, Direction Sense Test, Logical Venn Diagrams, Alphabet Test and Logical, Alpha-Numeric, Number, Mathematical Operations, Inserting the Missing Characters, Analytical Reasoning, Mirror Images and Water Images, Spotting Out The Embedded, Figure Matrix, Paper Folding and Paper Cutting, Grouping of Identical Figures, Cubes and Dice, Dot Situation, Construction of Squares and Triangles, Figure Formation and Analysis

For more details visit: <https://www.crestolympiads.com/teacher-reasoning-olympiad>

Logical Reasoning (Each Question is 3 Marks)

1. In the following question, find out the correct option which will make an appropriate analogical relationship between the two numbers to the left of the sign of double colon (::) and the same relationship between, the two numbers to the right of the sign of double colon (::):
 $08 : 28 :: 15 : ?$

a. 62 b. 65
 c. 126 d. 124

2. Pointing towards a photograph, David said, "She is the mother of my brother's son's wife's sister". How is the lady in the photograph related to David's brother?

a. Sister
 b. Daughter-in-law
 c. Daughter
 d. None of these

3. Reema is the niece of Aman. Suman is the mother of Aman. Kanika is the mother of Suman. Harish is husband of Kanika. Kavya is the mother-in-law of Harish. How is Reema related to Harish?

a. Daughter
 b. Great granddaughter
 c. Niece
 d. Great grandson's daughter

4. How many such pairs of letters are there in the word "GEOGRAPHY" which has as many letters between them as there are in the English alphabetical series?

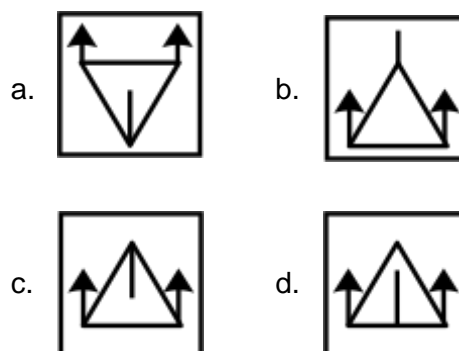
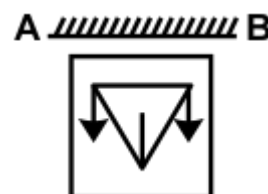
a. One b. Three
 c. Two d. More than three

5. How many triangles are there in the given figure?



a. 12 b. 14
 c. 10 d. 8

6. In the following question, choose the correct mirror image from the answer figures:



7. Which one set of letters, when sequentially placed at the gaps in the given letter series, shall complete it?

A B _ D C A _ C D C A B _ _ C

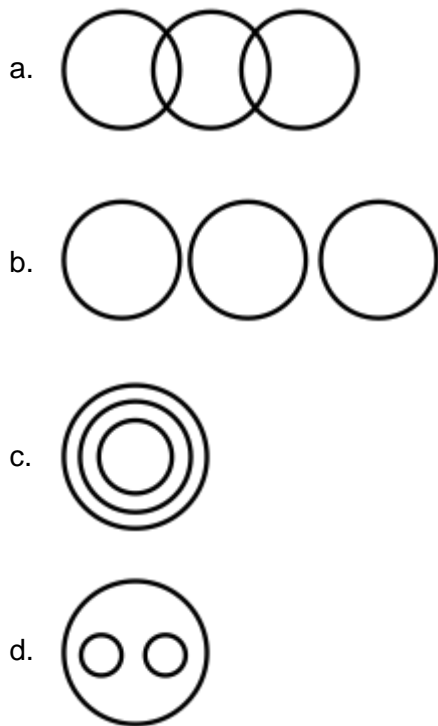
a. CDCB b. CDBD
 c. CBCD d. BB CD

8. One morning after sunrise, George was standing facing a pole. The shadow of the pole fell exactly to his right. Which direction was he facing?

- a. South b. East
c. West d. Data inadequate

9. The question below contains three group of things. You have to choose from the following four diagrams, the one that depicts the correct relationship among the groups of things:

Examination, Questions, Practice

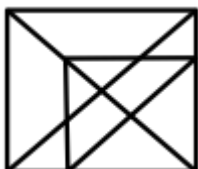


10. In the following question, which one of the four interchanges in signs and numbers would make the given equation correct?

$$6 \times 4 + 2 = 16$$

- a. + and x, 2 and 4
b. + and x, 2 and 6
c. + and x, 4 and 6
d. - and x, 4 and 6

11. In the following question, find the number of triangles in the given figure:

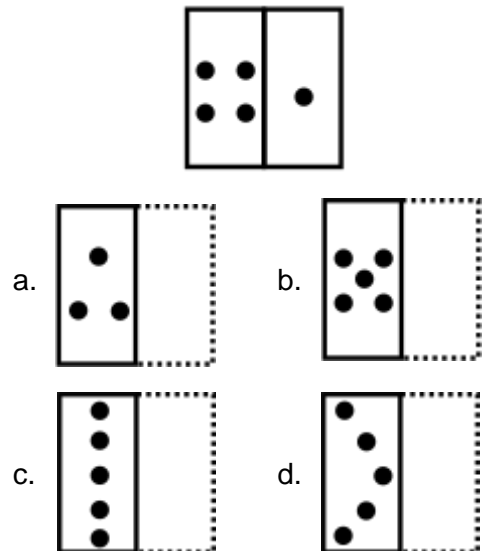


- a. 16 b. 18
c. 19 d. 21

12. In the following question, four words have been given, out of which three are alike in some manner and the fourth one is different. Choose the odd one out:

- a. Infant b. Cub
c. Doe d. Kitten

13. In the following problem, a square transparent sheet with a pattern is given. Figure out from amongst the four alternatives, which pattern would appear when the transparent sheet is folded at the dotted lines.



14. Which of the following words cannot be formed using the letters of the word- "Flyweights"?

- a. Whistle b. Wishful
c. Swiftly d. Itself

15. What should come in the place of question mark (?) in the following alpha-numeric series?

86 XW 68, 85 UT 58, 84 RQ 48, ?, 82 LK 28

- a. 83 ON 38 b. 83 PO 38
c. 83 RP 38 d. 83 NO 38

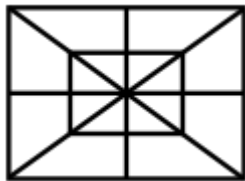
16. If in a certain code language 'HIGH' is written as '8978', then how will 'DEAF' be written in that language?

- a. 5416 b. 4516
c. 4561 d. 4156

17. If $A + B = C + D$ and $A + D > B + C$, then which one of the following is definitely wrong?

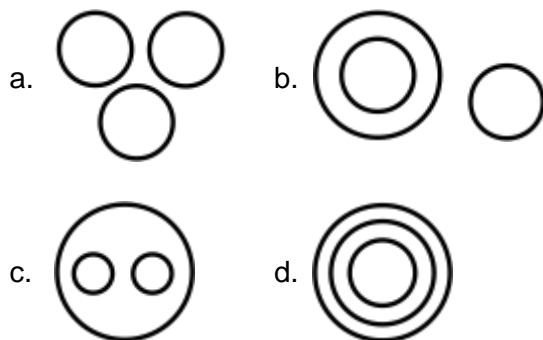
- a. $A > B$ b. $A > C$
c. $C > D$ d. $B > D$

18. In the following question, count the number of triangles and squares in the given figure:



- a. 28 triangles, 10 squares
b. 28 triangles, 8 squares
c. 32 triangles, 10 squares
d. 32 triangles, 8 squares

19. In the following question, three classes are given. Out of the four figures that follow, you are to indicate which figure will best represent the relationship between the three classes: Elephants, Wolves, Animals



20. In each of the following questions, arrange the given words in the sequence in which they occur in the dictionary and then choose the correct sequence:

1. Dissipate
2. Dissuade
3. Disseminate
4. Distract
5. Dissociate
6. Dissect

- a. 6, 3, 1, 5, 2, 4
b. 1, 6, 3, 2, 4, 6
c. 3, 6, 1, 2, 5, 4
d. 4, 6, 3, 1, 5, 2

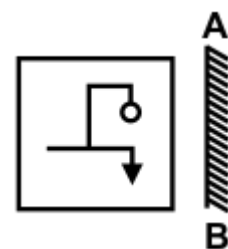
21. Introducing a man, Noah said, "His daughter is the only grand-daughter of my father". How is the man related to Noah?

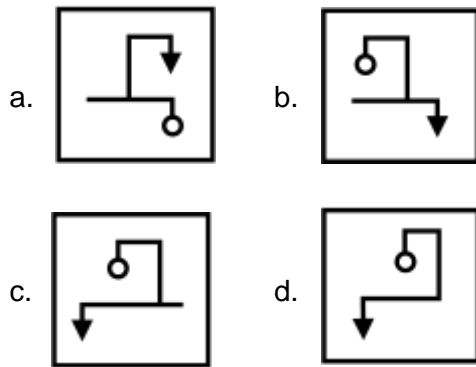
- a. Brother b. Brother-in-law
c. Husband d. Sister

22. Jack started walking towards south from point A. After walking 2 m he turned left and walked 4 m ahead. After this he again turned towards his left and walked 5 m ahead to reach point D. Then what is the shortest distance between point A and D?

- a. 5 m b. 13 m
c. 3 m d. 23 m

23. In the following question, choose the correct mirror image from the alternatives, when mirror is placed on the line AB.

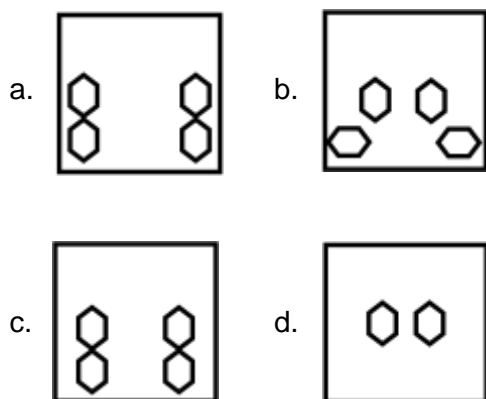
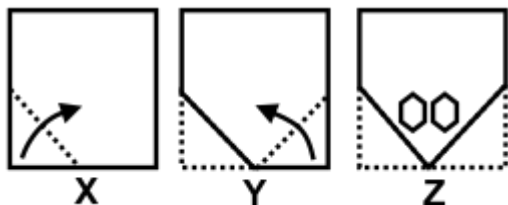




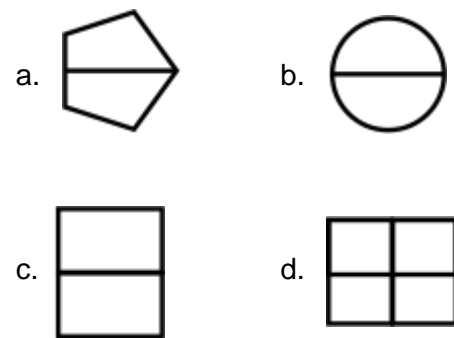
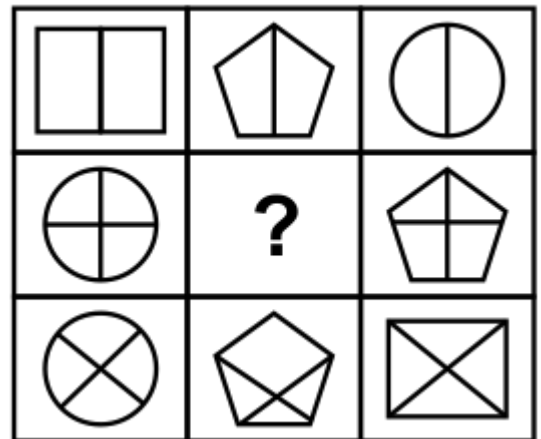
24. Read the following information carefully and answer the question given below.
Robert and Kate like hockey and volleyball. Sam and Robert like hockey and badminton. Georgia and Kate like chess and volleyball. Sam, Georgia and Mike like football and badminton. Who likes badminton, chess, football and volleyball?

- a. Sam b. Kate
c. Georgia d. Robert

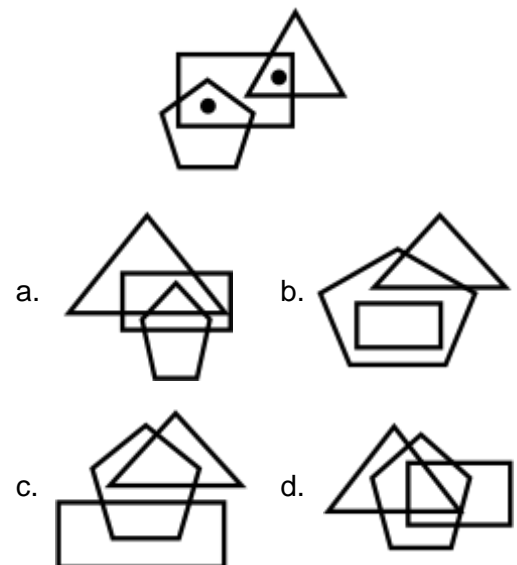
25. In the following question, a piece of paper is folded in the manner shown in the question figure(s). Select the figure out of the answer choices showing the unfolded pattern after the punches (cut).



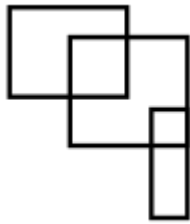
26. Select an appropriate figure from the given alternatives that would complete the figure matrix:



27. Select the option figure which satisfies the same conditions of the placement of dots as in the question figure:



28. How many quadrilaterals are there in the given figure?



- a. 6 b. 5
c. 4 d. 7

29. A word arrangement machine input is given with an input line of words which rearrange them following a particular pattern in each step. The following is an illustration of input and rearrangement.

Input: music 46 certain 13 erase 96
noise 45 solve 73 are 51

Step I: Solve music 46 certain 13 erase
noise 45 73 are 51 96

Step II: Solve noise music 46 certain
13 erase 45 are 51 73 96

Step III: Solve noise music erase
certain 13 45 are 46 51 73 96

Step IV: Solve noise music erase
certain are 13 45 46 51 73 96

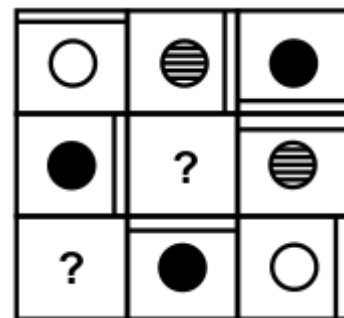
Step IV is the last step of the above input arrangement. As per the rules followed in the given steps, find out the appropriate steps for the given input.

Input: now 49 could 76 be 18 the 34
purpose 86 above 93 which 71

How many steps will be required to complete the given arrangement based on the given input?

- a. Four b. Six
c. Seven d. Five

30. Identify the missing figure from the answer figures to complete the given figure matrix.



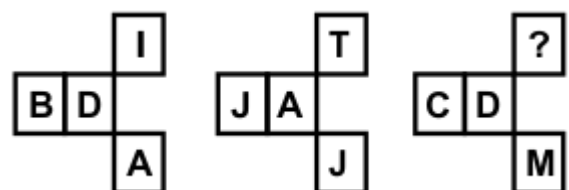
- a. b.
- c. d.

Achievers' Section (Each Question is 6 Marks)

31. If in a certain code language 'how old are you' is written as 'ko to po ha' and 'you are very beautiful' is written as 'na po da to', then how will 'how' be written in that language?

- a. ko b. ha
c. 'ko' or 'ha' d. Data inadequate

32. In the following question, determine the number/letters that replaces the question mark:



- a. W b. Y
c. V d. Z

33. A word and number arrangement machine when given an input line of words and numbers rearranges them following a particular rule in each step. The following is an illustration of input and rearrangement.

Input : 29 own 18 down 37 13 low east
46 pick 26 alarm

Step I : alarm 42 29 own 18 down 13
low east 46 pick 26

Step II : alarm 42 east 34 own 18 down
13 low 46 pick 26

Step III: alarm 42 east 34 own 18 18
down low 46 pick 26

Step IV: alarm 42 east 34 own 18 pick
13 down low 46 26

Step V: alarm 42 east 34 own 18 pick
13 low 21 down 46

Step VI: alarm 42 east 34 own 18 pick
13 low 21 down 41

Step VI is the last step of the above
arrangement.

As per the rules followed in the steps
given above, find out in the following
question the appropriate step for the
given input.

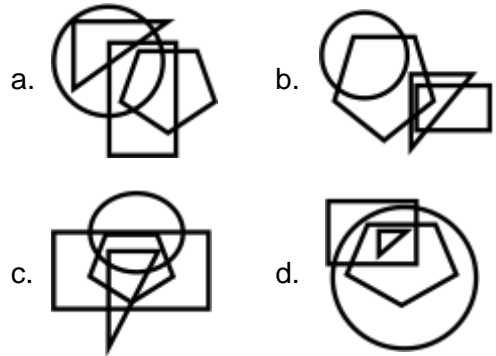
Input: 28 upon 19 flow 41 38 India melt
16 eat cream 31 quick

Which step number should be the
following output?

“eat 48 India 36 upon 24 quick 13 melt
27 flow cream 38”

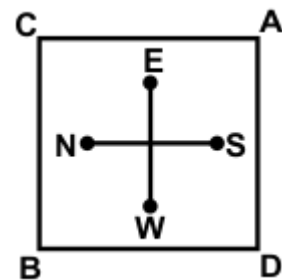
- a. Step VI
b. Step IV
c. Step V
d. There will be no such step

34. Select the option figure which satisfies the same conditions of the placement of dots as in the question figure:



35. The following question are based on the diagram given below showing four persons stationed at the four corners of a square piece of plot as shown.

A starts crossing the field diagonally. After walking half the distance, he turns right, walks some distance and turns left. Which direction is A facing now?



- a. North-east b. North-west
c. North d. South-east

36. Identify the odd one out:
21C, 13D, 33F, 23G

- a. 21C b. 13D
c. 33F d. 23G

37. In the following question, various terms of an alphabet series are given with one or more terms missing as shown by (?). Choose the missing terms out of the given alternatives.

b e d f ? h j ? l

- a. i m b. m i
c. i n d. j m

38. A cube is painted red on two adjacent faces, yellow on the two faces opposite to the red faces and green on the remaining faces. It is then cut into 64 smaller cubes of equal size. Answer the following question based on this information.

How many cubes are there which have no face painted?

- a. 24 b. 16
c. 8 d. 4

39. A cube is painted red on two adjacent faces, yellow on the two faces opposite to the red faces and green on the remaining faces. It is then cut into 64 smaller cubes of equal size. Answer the following question based on this information.

How many cubes have one face green and one of the adjacent faces red or yellow?

- a. 24 b. 20
c. 16 d. 12

40. Read the information given below carefully and answer the question.
Some of the entries of the Asian games medal tally of the three countries - India, China and Japan are as shown below:
It is known that-

- The number of silver medals won by India is more than that won by Japan but less than that won by China.
- Gold medal count of Japan is greater than that of China but lesser than that of India.
- China won more bronze medals than India but not as much as Japan.
- Each gold medal carries 3 points, silver 2 points and bronze 1 point.

- India, the winner of the Asian games defeated China by a small margin of just 1 point.
- For each of the three countries, the count of the gold, silver and bronze medals is different and greater than zero.

	Gold	Silver	Bronze
India	3		
China		4	
Japan			5

The number of bronze medals won by China is _____.

- a. 1 b. 2
c. 3 d. 4

41. If $A + B = C + D$, $B + D = 2A$, $D + E > A + B$, $C + D > A + E$, then

- a. $A > B > D > E > C$
b. $A > D > B > E > C$
c. $D > A > B > E > C$
d. $D > B > E > A > C$

42. Study the information given below and answer the question.

Eight bureaucrats are having a round table conference with each one seated facing the centre. A is sitting two positions to the right of E. B is sitting between D and F. G, due to his personal enmity with A, doesn't sit next to him but instead sits diametrically opposite to D. The position of H is equidistant from either side of A.

A's immediate neighbours are:

- a. C, F b. C, D
c. B, C d. F, H

43. Which set of letters completes the second pair in the same way as the first pair?

aabbaabbab is to zzcczzcczc, as
mnmnmnm is to

- a. nonnonnn b. onnonnnn
c. nmmnmnmn d. cczzcczz

44. A solid cube is formed with 27 smaller cubes. One pair of opposite faces of this cube is painted red, another pair is painted yellow and the third pair of opposite faces is painted white. How many smaller cubes have two faces painted?

- a. 8 b. 12
c. 16 d. 24

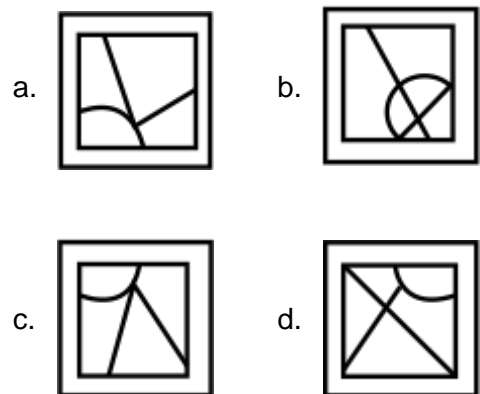
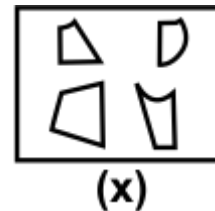
45. In the question given below, there are two Statements A and B. These statements may be either independent causes or may be effects of independent causes or of a common cause. One of these statements may be the effect of the other statement. Read both the statements and decide which of the following answer choices correctly depicts the relationship between these two statements:

- A. The university authority has decided to conduct all terminal examinations in March/April every year to enable them to declare results in time.
B. There has been considerable delay in declaring results in the past due to shortage of teachers evaluating the answer sheets of the examination conducted by the university.

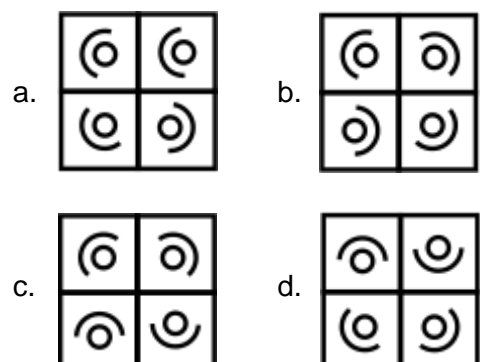
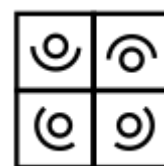
- a. Statement A is the cause and Statement B is its effect

- b. Statement B is the cause and Statement A is its effect
c. Both statements are independent causes
d. Both statements are effects of independent causes

46. In the following question, find out which of the figures (a), (b), (c) and (d) can be formed from the pieces given in fig. (X).



47. Which of the following will be the correct mirror image of the given figure?



48. Two persons David and Davis started running from two different points. David started from point A and ran 6 meters towards East and then turned towards his right and ran 8 meters ahead to reach point D. After reaching point D, he turned towards his left and moved some distance ahead to reach a point E which is 4 meters to the North of point C. Davis started moving from point C towards point A and after travelling 15 meters he reached point A. While moving towards point A, Davis crossed point D which is in line with point A and C. What is the shortest distance between point D and E?

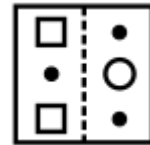
- a. 1 meters
- b. 2 meters
- c. 3 meters
- d. Cannot be determined

49. How many triangles are there in the following figure?



- a. 18
- b. 22
- c. 19
- d. 21

50. How would the given transparent sheet of paper appear when folded along the dotted line?



- a.
- b.
- c.
- d.

Answer Key

- | | | | | | | | | | | | | | |
|-----|---|-----|---|-----|---|-----|---|-----|---|-----|---|-----|---|
| 1. | b | 2. | d | 3. | b | 4. | b | 5. | a | 6. | c | 7. | c |
| 8. | a | 9. | a | 10. | c | 11. | d | 12. | c | 13. | b | 14. | b |
| 15. | a | 16. | b | 17. | d | 18. | c | 19. | c | 20. | a | 21. | a |
| 22. | a | 23. | c | 24. | c | 25. | b | 26. | d | 27. | a | 28. | a |
| 29. | d | 30. | b | 31. | c | 32. | b | 33. | d | 34. | b | 35. | b |
| 36. | d | 37. | a | 38. | c | 39. | a | 40. | b | 41. | c | 42. | b |
| 43. | a | 44. | b | 45. | c | 46. | a | 47. | d | 48. | c | 49. | b |
| 50. | b | | | | | | | | | | | | |