



CREST Reasoning Olympiad (CRO)

Sample Paper

Pattern and Marking Scheme

Grade	Topic/Section	No. of Questions	Marks per Question	Total Marks
Grade 10	Logical Reasoning	40	1	40
	Achiever's Section	10	2	20
Grand Total		50		60

The total duration of the exam is 60 minutes.

Syllabus

Section 1: Series Completion, Analogy and Classification, Coding - Decoding, Blood Relations, 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.

Achievers Section: Higher Order Thinking Questions - Syllabus as per Section 1

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

Logical Reasoning (Each Question is 1 Mark)

- In the following question, there is a certain relationship between the two given numbers on one side of ($:$) and one number is given on another side of ($:$) where another number is to be found from the given alternatives, having the same relationship with this number as the numbers of the given pair bear. Choose the best alternatives.

25 : 625 :: 35 : ?

a. 1575	b. 1205
c. 845	d. 635
- If 'GERMANY' is written as '7, 5, 18, 13, 1, 14, 25', how can 'FRANCE' be written in that code?

a. 6, 18, 1, 14, 3, 5	b. 6, 3, 18, 14, 1, 5
c. 8, 2, 14, 5, 13, 6	d. 8, 16, 14, 3, 1, 5
- If 'blue' is called 'green', 'green' is called 'white', 'white' is called 'red', 'red' is called 'black', then what is the colour of sky?

a. Blue	b. Green
c. White	d. Black
- If '+' means '-', ' \div ' means '+', '-' means 'x' and 'x' means ' \div ', then which of the following equation is correct?

a. $40 - 10 + 10 \times 5 = 92$	b. $265 + 11 - 2 \times 14 = 22$
c. $66 \times 3 - 11 + 12 = 230$	d. $2 - 14 \times 4 \div 11 = 16$
- In the following question, one number is wrong in the series. Find out the number.

3, 12, 36, 144, 431, 1728, 5184

a. 5184	b. 36
c. 144	d. 431
- In the following question, one number is wrong in the series. Find out the number.

385, 462, 572, 396, 427, 671, 264

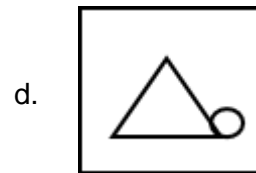
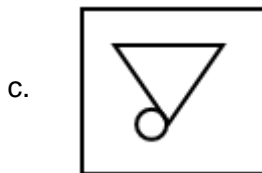
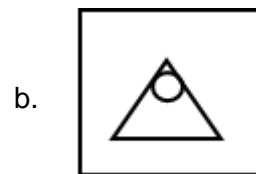
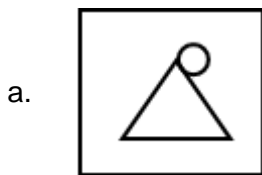
a. 385	b. 427
c. 671	d. 264
- What comes in place of the question mark (?) in the following letter series?
PMK, MPK, MKP, KMP, ?

a. PMK	b. KMP
c. MPK	d. KPM

8. In the following question, choose the correct mirror image from the alternatives, when the mirror is placed on the dotted line shown.



9. Choose the correct mirror image from the answer figures in the following question.



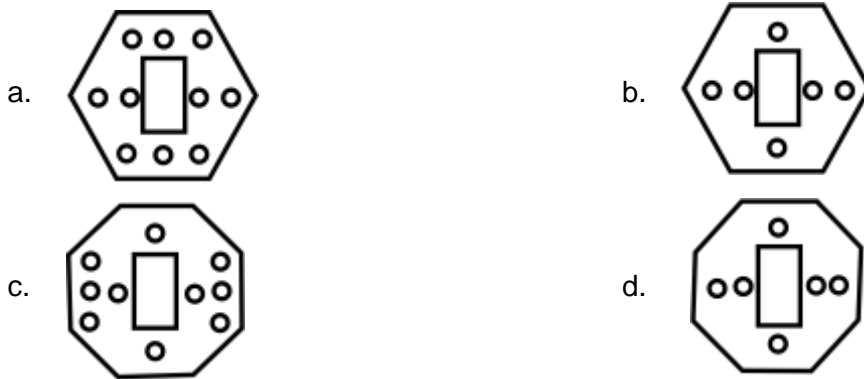
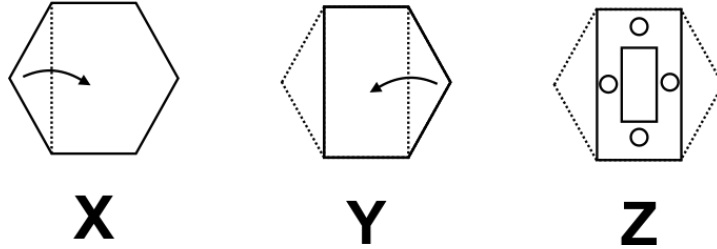
10. Study the following information carefully to answer the question.

1. 'A \$ B' means 'A is the mother of B'.
2. 'A # B' means 'A is the father of B'.
3. 'A @ B' means 'A is the husband of B'.
4. 'A % B' means 'A is the daughter of B'.

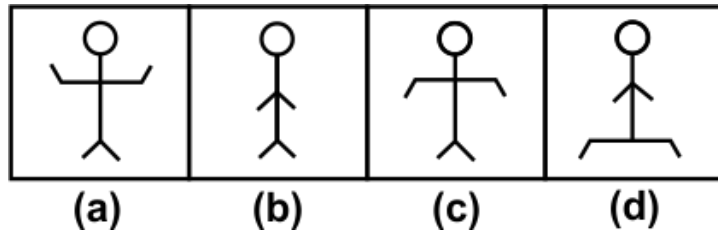
If F@D%K#H, then how is F related to H?

- a. Brother-in-law
- b. Sister
- c. Sister-in-law
- d. Cannot be determined

11. 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).



12. In the following question, four figures are given. Three are similar in a certain way and so form a group. Find out which one of the figures does not belong to that group.



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

13. In the following question, there is a certain relationship between two given words on one side of (::). Find the word on the other side so that the second pair has the similar relationship with the first pair.

HCM : FAK :: SOD : ?

- a. QMB
- b. QIB
- c. ESQ
- d. GES

14. If 'K' denotes 'x', 'B' denotes '÷', 'T' denotes '-' and 'M' denotes '+', then $40 B 8 T 6 M 3 K 4 = ?$

- a. 19
- b. 11
- c. -31
- d. 23

15. In this question, relationship between different elements is shown in the statements. The statements are followed by two conclusions. The statements are followed by two conclusions.
 Statements: $A > B$, $B = H$, $H > G$
 Conclusions: I. $A > G$, II. $A > H$

- a. Only conclusion I follow
- b. Only conclusion II follow
- c. Both conclusion I or conclusion II follows
- d. Neither conclusion I nor conclusion II follows

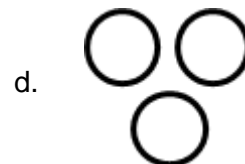
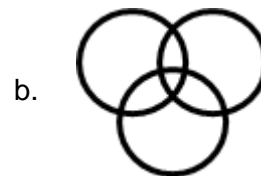
16. In the following series, replace the question mark (?) with the suitable option.
 4, 5, 7, 10, 14, 19, ?

- a. 28
- b. 23
- c. 22
- d. 25

17. The question given below contains three groups of items. You are required to choose one of four option diagrams that depict the correct relationship among the three groups of items in the given question.
 India, Pakistan, Asia

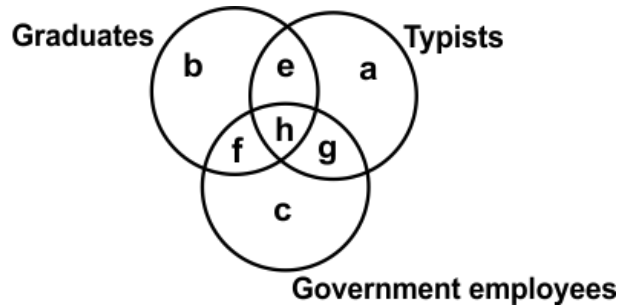


18. Which of the following diagrams best represents the relationship among given words?
 Elephant, Wolf, Animal

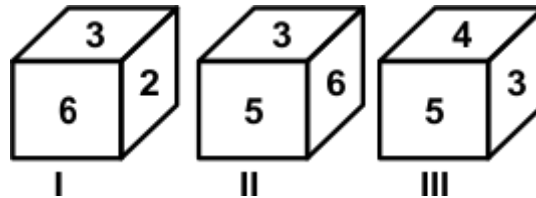


19. The figure given below is made of three circles intersecting one another. These circles represent graduates, typists and government employees. The intersecting regions have been denoted by a, b, c, e, f, g and h, respectively. Study the diagram carefully and answer the question that follows.

Which of the following letters represents the typists are only graduates?



- a. e
b. h
c. g
d. a
20. Three positions of a dice are given below. Identify the number on the face opposite to 6.



- a. 1
b. 4
c. 5
d. 7
21. Study the given relationship and complete the following analogies from the two sets of options given.

Square is to (i), as Circle is to (ii)
(i) [A] Rectangle [B] Cube [C] Cuboid [O] Triangle
(ii) [W] Ellipse [X] Ellipsoid [Y] Sphere [X] Line

- a. CW
b. BY
c. AZ
d. BX
22. Which set of letters completes the second pair in the same way as the first pair?
ADJM is to ZWQN, as FKIM is to _____.
- a. KPNM
b. UPRN
c. MPNK
d. KPMN
23. Which group of numbers has the same property of the numbers as in the given set?
Given set: {48, 40, 24}
- a. {50, 52, 26}
b. {42, 40, 26}
c. {50, 42, 26}
d. {48, 42, 26}

24. In the following question, choose which number completes the second pair in the same way as the first pair.
T/20 : S/19 :: L/12 : ?

- a. J/10
c. R/18
- b. K/11
d. Q/17

25. If 'MUMBAI' is coded as '132113219', then how is 'DELHI' written in that code?

- a. 139213
c. 451289
- b. 82369
d. 13689

26. If 'A' is coded as 2, 'B' as 4, 'C' as 6 and so on, then which of the following is the numerical value of the word 'ORANGE'?

- a. 50
c. 100
- b. 80
d. 120

27. Study the following information carefully and answer the question given below:

1. 'pa ki top ma' means 'Usha is playing cards'.
2. 'kop ja ki ma' means 'Asha is playing tennis'.
3. 'ki top sop ha' means 'they are playing football'.
4. 'pa sur kop' means 'card and tennis'.

Which of the following represents 'tennis' in that language?

- a. po
c. ja
- b. kop
d. ma

28. Five friends A, B, C, D and E go to watch a movie in a cinema hall. They sit in the front row on seats numbered 1-5, where 5 is to the extreme right. E sits to the immediate right of A, who doesn't sit on seat numbered 1. The sum of the seat numbers of C and D is equal to the sum of seat numbers of B and E. Which one of the five persons is sitting in the middle?

- a. E
c. C
- b. A
d. B

29. Pointing to the man in the photograph, Robert said "His mother has only one grandchild whose mother is my sister." How is Robert related to the man in photograph?

- a. Father-in-law
c. Father
- b. Brother-in-law
d. Brother

30. Pointing towards photograph, Richard said, "His sister is the mother of Harry who is the son of my brother." How Richard is related to Harry?

- a. Uncle
c. Nephew
- b. Father
d. Cousin

31. Sam is the brother of Arthur. Rose is the sister of Mike. Arthur is the son of Rose. How Sam is related to Mike?
- a. Brother
b. Nephew
c. Cousin
d. Daughter

32. Use the relationships defined below to solve the question.

1. 'P × Q' means 'P is the father of Q'.
2. 'P * Q' means 'P is the sister of Q'.
3. 'P + Q' means 'P is the brother of Q'.
4. 'P - Q' means 'P is the mother of Q'.
5. 'P ÷ Q' means 'P is the son of Q'.
6. 'P = Q' means 'P is the daughter of Q'.

If $Z \times X - Y$, then which of the following is true?

- a. Z is the maternal uncle of Y
b. Z is the grandfather of Y
c. X is the nephew of Z
d. Z is the grandmother of Y

33. Choose the missing term in the given series.

BC, EFG, IJKL, ?, TUVWXY

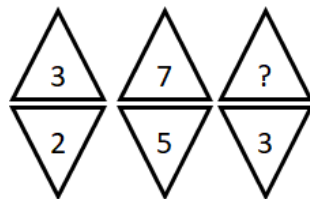
- a. NOPQR
b. LMNOP
c. MNOPQ
d. MNLOP

34. Choose the option that will replace the question mark (?):

7, 21, 63, 189, ?

- a. 567
b. 587
c. 652
d. 852

35. In the following question, determine the number that replaces the question mark.



- a. 2
b. 5
c. 3
d. 11

36. Determine the term that would come in place of the question mark.



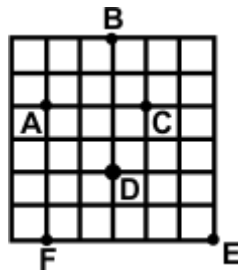
- a. 10
b. 13
c. 12
d. 14

37. Kevin starts from point A and covers a distance of 2 km in South direction. He then turns to his left and covers 1 km, then he again turns to his left and covers 3 km to reach point B. In which direction he is from the starting point?

- a. South-East
- b. North-East
- c. South-West
- d. East

38. Study the following map and answer the question.

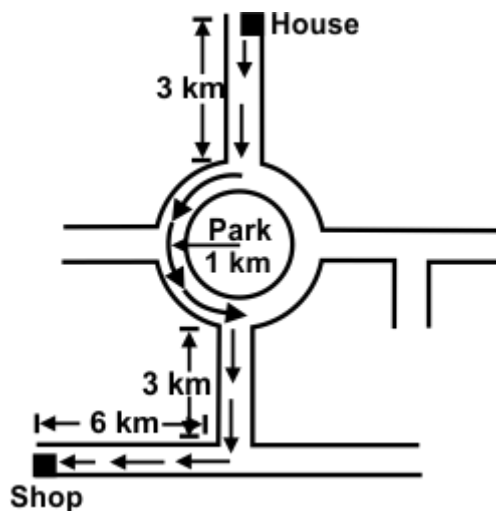
Here, A, B, C, D, E and F are six cities. Cities A and F are to the _____ of city B.



- a. South-East
- b. South-West
- c. South
- d. North-East

39. The figure given below shows the map of the path between Richard's house and his shop. Study the map and answer the following question:

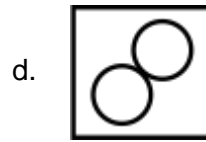
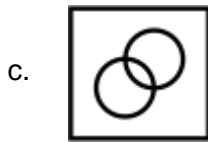
Here, the circular park is given whose radius is 1 km. In which direction his shop lies with respect to park?



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

40. At an office where an interview was conducted to select persons for clerical posts, they came to know that, out of 20 persons, 12 knew only typing and 5 knew only shorthand and the rest knew both typing and shorthand. Which of the following diagrams represents this fact?





Achiever's Section (Each Question is 2 Marks)

41. In the question given below, there are four statements followed by two conclusions numbered I and II. You have to take the four given statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusions, logically follows from the four statements disregarding commonly known facts.

Statements

- I. Some leaves are petals.
- II. Some petals are flowers.
- III. All flowers are fruits.
- IV. Some fruits are nuts.

Conclusions

- I. Some nuts are flowers.
 - II. No nut is a flower.
- a. Only conclusion I follow
 - b. Only conclusion II follow
 - c. Both conclusion I and conclusion II follows
 - d. Neither conclusion I nor conclusion II follows

42. In making decisions about important question, it is desirable to be able to distinguish between 'strong' arguments and 'weak' arguments. 'Strong' arguments are those which are both important and directly related to the question. 'Weak' arguments are those which are of minor importance and also may not be directly related to the question or may be related to a trivial aspect of the question. The question below is followed by two arguments numbered I and II. You have to decide which of the arguments is a 'strong' argument and which is a 'weak' argument?

Statement- Should luxury hotels be banned in India?

Arguments

- I. Yes, these are places from where international criminals operate.
- II. No, affluent foreign tourists will have no place to stay.

- a. Only argument I is strong
- b. Only argument II is strong
- c. Both argument I and II are strong
- d. Neither argument I nor argument 2 is strong

43. In the question given below, there is a statement followed by two conclusions numbered I and II. You have to assume everything in the statement to be true, then consider the two conclusions together and decide which of them logically follows beyond a reasonable doubt from the information given in the statement.

Statement- The nation 'X' faced the increased international opposition due to its decision of performing eight nuclear explosions.

Conclusions

- I. The citizens of the nation have favoured the decision.
- II. Some powerful nations do not want that others may become powerful.

- a. Only conclusion I follows
- b. Only conclusion II follows
- c. Both conclusion I and conclusion II follows
- d. Neither conclusion I nor conclusion II follows

44. In the question given below, there are two statements followed by two conclusions numbered I and II. You have to take the two given statements to be true even if they seem to be at variance from commonly known facts and decide which of the given conclusion(s), logically follow(s) from the two given statements disregarding commonly known facts.

Statements

- I. Some rats are cats.
- II. All cats are bats.

Conclusions

- I. No rats are cats.
- II. Some rats are bats.

- a. Only conclusion I follow
- b. Only conclusion II follow
- c. Both conclusion I and conclusion II follows
- d. Neither conclusion I nor conclusion II follows

45. Read the following information carefully and answer the question below.

A cube is painted red on two adjacent surfaces and black on the surfaces opposite to red surfaces and green on the remaining faces. Now, the cube is cut into 64 smaller cubes of equal size.

How many smaller cubes have only 3 surfaces painted with red colour?

- a. 0
- b. 12
- c. 24
- d. 8

46. Amongst four friends Sara, Betty, Georgia and Cathy, Betty is taller than Cathy but not taller than Sara, Georgia's height is shorter than that of Sara. Which of the following is not possible?

- a. Georgia and Cathy are of the same height
- b. Betty and Sara are of the same height
- c. Georgia is taller than Betty but shorter than Sara
- d. Georgia is taller than Betty but shorter than Cathy.

47. Numbers 1-100 are written on two coloured charts, one red and the other green, such that even numbers are written on the red chart and odd numbers are on the green chart. A mathematician selects two prime numbers and finds that the difference of these numbers is also a prime number. He then rubs off these three numbers from the charts. How many numbers are left on the two charts red and green, respectively?

- a. 48, 49
- b. 49, 48
- c. 50, 47
- d. 47, 50

48. Six friends are seated on a table built in the shape of a regular hexagon. B, C, E and F are seated relatively closer to A than D is from A. C and E are at the same distance from A. B is seated to the immediate left of C but not adjacent to D. Who is sitting between E and C?

- a. D
- b. B
- c. F
- d. A

49. In the given question, a series of letters and numbers is given, the terms of which follow a certain pattern in groups. However, some terms in the series are missing, which are given in the same order as one of the alternatives below the series. Choose the correct alternatives.

TP_16_N18_PL_12N_1410

- a. R, W, 20, 14, J
- b. T, 18, 14, P, 10
- c. 20, R, 14, 16, J
- d. 21, T, 12, 18, K

50. Shweta starts from point A and covers 4 km in North-East direction to reach point B, then she turns towards South-East and covers another 4 km to reach point C. Now, she turns towards South-West and travels another 4 km to reach point D. Finally, she turns towards North-West and travels another 4 km to reach point E. Calculate the shortest distance between points A and E.

- a. 16 km
- b. 4 km
- c. 8 km
- d. 0 km

Answer Key

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