

Tamil Nadu 2020-21 NTSE Stage 1 - Question Paper With Solutions

Paper: MAT

Direction: From question 1 to 7 - In each series, the alpha numericals are following certain rule or pattern. Choose the answer from the given four alternatives.

Question 1. 5, 12, 26, 47, 75, __?__

1. a. 99
2. b. 110
3. c. 105
4. d. 93

Solution:

1. Answer: (b)

$$\begin{array}{cccccc} 5 & 12 & 26 & 47 & 75 & \mathbf{110} \\ \boxed{} & \boxed{} & \boxed{} & \boxed{} & \boxed{} & \boxed{} \\ +7 & +14 & +21 & +28 & +35 & \end{array}$$

Question 2. 0, 2, 6, 12, 20, __?__

1. a. 24
2. b. 28
3. c. 26
4. d. 30

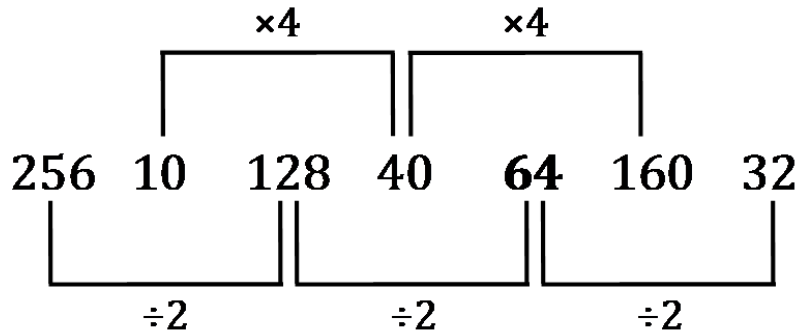
Solution:

1. Answer: (d)

$$\begin{array}{cccccc} 0 & 2 & 6 & 12 & 20 & \mathbf{30} \\ \boxed{} & \boxed{} & \boxed{} & \boxed{} & \boxed{} & \boxed{} \\ +2 & +4 & +6 & +8 & +10 & \end{array}$$

1. Answer: Bonus

Solving the pattern we are getting 64 which is not present in the option.



Question 6. -5A, 0F, -3C, 20Z, _____, 19Y

1. a. 2G
2. b. 1G
3. c. 2H
4. d. 2I

Solution:

1. Answer: (b) and (c)

First, we need to find the numerical order of the alphabet given in the right.

After that, we need to subtract 6 from it.

The resultant number that came after that has to be placed on the left.

-5A	0F	-3C	20Z	19y
↓	↓	↓	↓		↓
(A → 1)	(F → 6)	(C → 3)	(Z → 26)		(y → 25)
1 - 6 = -5	6 - 6 = 0	3 - 6 = -3	26 - 6 = 20		25 - 6 = 19

So, the remaining cases (from options) are -

- a. 2G → 7 - 6 = 1 ≠ 2 [Rejected]
- b. 1G → 7 - 6 = 1 [Accepted]
- c. 2H → 8 - 6 = 2 [Accepted]
- d. 2I → 9 - 6 = 3 ≠ 2 [Rejected]

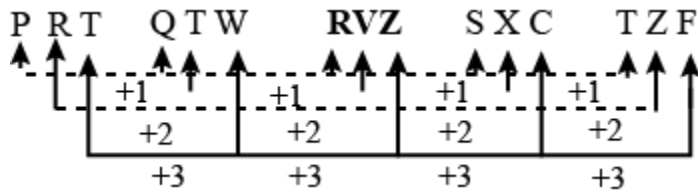
Question 7. PRT, QTW, _____, SXC, TZF

1. a. RWZ
2. b. RVY
3. c. RUY

4. d. RVZ

Solution:

1. Answer: (d)



Direction: (Question Numbers 8 to 12): In each of the following series, one term is wrong. Identify the wrong term.

Question 8. 0, 6, 24, 64, 120, 210

1. a. 120
2. b. 64
3. c. 210
4. d. 24

Solution:

1. Answer: (b)

0	6	24	64	120	210
$1^3 - 1 = 0$	$2^3 - 2 = 6$	$3^3 - 3 = 24$	$4^3 - 4 = \mathbf{60}$	$5^3 - 5 = 120$	$6^3 - 6 = 210$

$60 \neq 64$

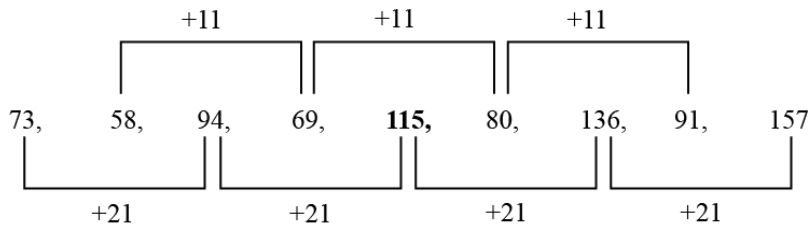
Question 9. 73, 58, 94, 69, 116, 80, 126, 91, 157

1. a. 58
2. b. 69
3. c. 116
4. d. 80

Solution:

1. Answer: Bonus

If in question series instead of 136 is given instead of 126, then the question can be solved as given below.



The wrong term in the series is 116

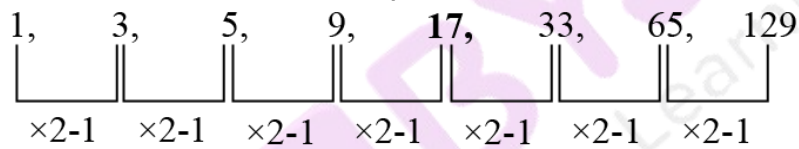
Question 10.1, 3, 5, 9, 18, 33, 65, 129

1. a. 18
2. b. 9
3. c. 65
4. d. 33

Solution:

1. Answer: BONUS

If 2 is there instead of 1 in question, then it can be solved



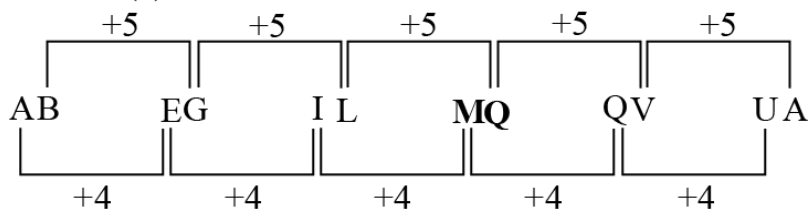
The wrong term in the series is 18

Question 11. AB, EG, IL, MP, QV, UA

1. a. IL
2. b. QV
3. c. MP
4. d. UA

Solution:

1. Answer: (c)

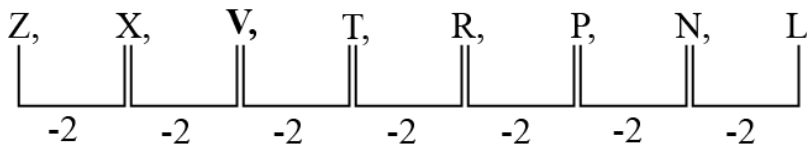


Question 12. Z, X, S, T, R, P, N, L

1. a. R
2. b. X
3. c. T
4. d. S

Solution:

1. Answer: (d)



The wrong term in the series is S

Question 13. 'Angle' is related to 'Radian' in the same way as 'Force' is related to

1. a. Newton
2. b. Pascal
3. c. Joule
4. d. Watt

Solution:

1. Answer: (a)
S.I. unit of 'angle' of 'radian'.
Similarly, the S.I. unit of 'Force' is 'Newton'.
So, option (A) is correct.

Question 14. 'Book' is related to 'Page' then 'Flower' is related to:

1. a. Essence
2. b. Fragrance
3. c. Petal
4. d. Garland

Solution:

1. Answer: (c)
'Book' is made of 'pages'. Similarly, 'Flower' is made of 'petals'.

Question 15. Paddy : Field :: ___?___ : ___?___

1. a. Steel, Mine
2. b. Steel, Ore
3. c. Steel, Factory

4. d. Steel, Iron

Solution:

1. Answer: (c)
'Paddy' is grown in the field. Similarly, 'Steel' is produced in the 'Factory'.

Question 16.7 : 77 :: __?__ : __?__

1. a. 3, 12
2. b. 5, 30
3. c. 2, 5
4. d. 5, 35

Solution:

1. Answer: (d)
Here the number is multiplied by the next prime number
 $7 \times 11 = 77$
Checking with all options we get
 $3 \times 5 = 15 \neq 12$
 $5 \times 7 = 35 \neq 30$
 $2 \times 3 = 6 \neq 5$
 $5 \times 7 = 35 = 35$

Question 17. throw : collect :: push : __?__

1. a. pull
2. b. door
3. c. window
4. d. knock

Solution:

1. Answer: (a)
'throw' and 'collect' are antonyms of each other.
Similarly, 'push' and 'pull' are antonyms of each other.

Question 18. apparel : shirt :: __?__ : necklace

1. a. gold
2. b. jewellery
3. c. silver
4. d. ring

Solution:

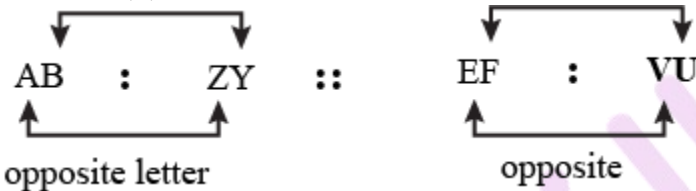
1. Answer: (b)
'shirt' belongs to 'apparel'.
Similarly, 'necklace' belongs to 'jewellery'.

Question 19. AB : ZY :: EF : __?__

1. a. UV
2. b. VW
3. c. WV
4. d. VU

Solution:

1. Answer: (d)



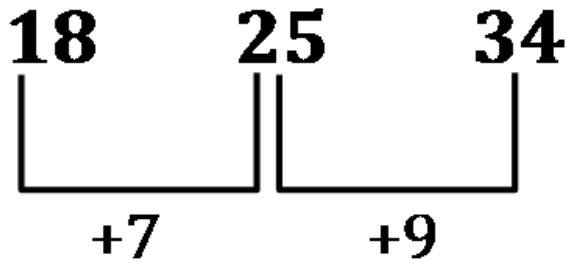
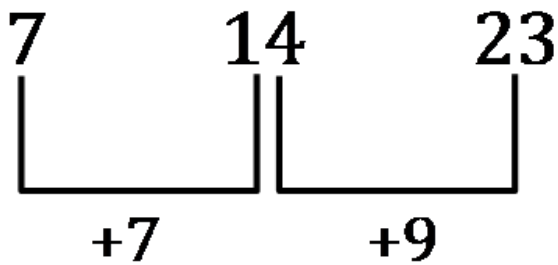
A ↔ Z (1st from starting and from ending)
B ↔ Y (2nd from starting and 2nd from ending)
So, E ↔ V (5th from starting and 5th from ending)
F ↔ U (6th from starting and 6th from ending)

Question 20. (7, 14, 23)

1. a. (18, 25, 32)
2. b. (27, 36, 45)
3. c. (5, 11, 19)
4. d. (18, 25, 34)

Solution:

1. Answer: (d)



Question 21. In the following letter series, some of the letters are missing which are given in the alternatives in order.

Choose the correct alternative.

abb_baa_a_bab_ab

1. a. cccc
2. b. baab
3. c. abab
4. d. abba

Solution:

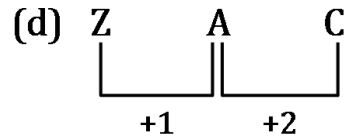
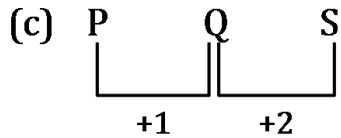
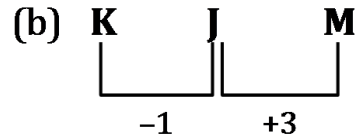
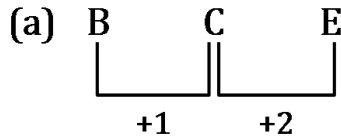
1. Answer: (d)
abba baab **abba** baab
∴ abba is answer.

Question 22. Choose the group of letters which is different from others.

1. a. BCE
2. b. KJM
3. c. PQS
4. d. ZAC

Solution:

1. Answer: (b)



Question 23. If, in a certain code language 'FRUIT' is coded as 'ZLOCN' then 'FLOWER' is coded as:

1. a. ZFIQYM
2. b. AFIQYM
3. c. ZFIQYL
4. d. AFIQYL

Solution:

1. Answer: (c)



Question 24. If C = 6, BE = 14, L = 24 and BAG = 20 then 'LUGGAGE' is :

1. a. 120
2. b. 60
3. c. 240
4. d. 44

Solution:

1. Answer: (a)

First, we will write the alphabetical order of the given alphabet

C	B	E	L	A	G	U
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3	2	5	12	1	7	21
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2.

Now multiplying it with 2 we get

$$C = 3 \times 2 = 6 \Rightarrow \mathbf{6}$$

$$BE = (2 + 5) \times 2 = 14 \Rightarrow \mathbf{14}$$

$$L = 12 \times 2 = 24 \Rightarrow \mathbf{24}$$

$$BAG = (2 + 1 + 7) \times 2 = 10 \times 2 \Rightarrow \mathbf{20}$$

$$\text{So, LUGGAGE} = x \Rightarrow (12 + 21 + 7 + 7 + 1 + 7 + 5) \times 2$$

$$\Rightarrow x = 120$$

Question 25. In a code language :

- (i) 'im be pee' means 'petals are blue'
- (ii) 'sik hee' means 'red flowers'
- (iii) 'pee mit hee' means 'flowers are fragrant'.

Then, 'fragrant are red flowers' is:

- 1. a. pee im mit hee
- 2. b. im be sik mit
- 3. c. be sik pee mit
- 4. d. sik hee pee mit

Solution:

- 1. Answer: (d)
From (i) and (iii) Pee - are
From (ii) and (iii) hee - flower
sik - red
mit - fragrant
'fragrant are red flowers' will be 'mit pee sik hee'

Question 26. If $a + b = 51$; $x + y = 5$, then $p - q$ is :

- 1. a. 1
- 2. b. -1
- 3. c. 3
- 4. d. 20

Solution:

1. Answer: (a)

$$a + b = 51$$

↓ ↓

$$26 + 25 = 51$$

(alphabets numerical order from right to left)

Similarly,

$$x + y = 5$$

↓ ↓

$$3 + 2 = 5$$

$$\text{So, } p - q = 11 - 10 = 1$$

Question 27. A mountain has always _____.

1. a. animals
2. b. trees
3. c. height
4. d. birds

Solution:

1. Answer: (c)
A mountain always has some height.

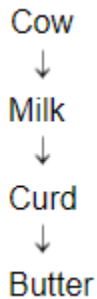
Question 28. Choose the most appropriate sequence

- (a) cow
- (b) curd
- (c) milk
- (d) butter

1. a. (a), (d), (c), (b)
2. b. (c), (d), (b), (a)
3. c. (a), (b), (c), (d)
4. d. (a), (c), (b), (d)

Solution:

1. Answer: (d)



So, (a), (c), (b), (d) is the meaningful sequence

Direction: (Question Number 29) - Choose the best reaction from the alternatives for the given situation.

Question 29. You are cycling on the narrow crowded street and suddenly you see a one rupee coin on the pavement. What action will you take?

1. a. Take the coin and give it to a beggar.
2. b. Take the coin and pocket it yourself.
3. c. Leave it where it is.
4. d. Take the coin and deposit it in the nearest police station.

Solution:

1. Answer: (d)

As per the moral values, he may take it and hand it over to the nearest police station. So, option (d) is correct.

Direction:(Question Number 30) - Arrange the given words in dictionary alphabetical order and choose the word which comes in the middle.

Question 30.

(a) credential (b) creed (c) colour (d) credible (e) create

1. a. (a)
2. b. (e)
3. c. (b)
4. d. (d)

Solution:

1. Answer: (a)

Colour (O < r)

Create (a < d)

Credential (e < i)
Credible
Creed
Order Will be
Colour, Create, Credential, Credible, Creed
So, Credential will be the middle word.

Direction: (Question Numbers 31 to 40) - Read the instructions and information given in the questions, and choose the best alternative.

Question 31. Choose the word which can't be made from the letters of the word CHOREOGRAPHY.

1. a. GRAPH
2. b. GEOGRAPHY
3. c. CORE
4. d. ROGUE

Solution:

1. Answer: (d)
option (a) : Graph
CHOREOGRAPHY (Rejected)
option (b) GEOGRAPHY
C H O R E O G R A P H Y (Rejected)
Option (c) CORE
C H O R E O G R A P H Y (Rejected)
Option (d) ROUGE
C H O R E O G R A P H Y (Accepted)
U word is not there in 'CHOREOGRAPHY'
So, 'ROUGE' can't be made from CHOREOGRAPHY

Question 32. Select the combination of numbers so that the letters arranged accordingly will form a meaningful word.

I P E C L O

1 2 3 4 5 6

1. a. 265143
2. b. 651432
3. c. 265134
4. d. 261543

Solution:

1. Answer: (a)
P O L I C E
2 6 5 1 4 3

Question 33. A meaningful word starting with 'A' and the other four letters are from the first, second, fourth and fifth letters of the word 'CONTRACT'. The last letter of the meaningful word is:

1. a. O
2. b. T
3. c. R
4. d. A

Solution:

1. Answer: (c)
C O N T R A C T
1 2 4 5
New word - ACOTR
Meaningful word: ACTOR
So, last letter = R

Question 34. The number of P's in the following series which are immediately followed by B as well as immediately preceded by Z is :

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

Solution:

1. Answer: (d)
Z P B
PMBZPNPPBZPBZBPPZPBZPB

Question 35. If the alphabet series is written in the reverse order, which letter will be sixth to the left of the eighteenth letter from the right?

1. a. C
2. b. X
3. c. B
4. d. Y

Solution:

1. Answer: (b)

ZYXWVUTS RQPON MLKJ IHGFEDCBA
↓ ↓
6th to left ← 18th to right

Question 36. Three of the following four are alike in a certain way. Which one of them does not belong to that category?

Carrot, Sweet potato, Beetroot, Potato

1. a. Potato
2. b. Beetroot
3. c. Carrot
4. d. Sweet potato

Solution:

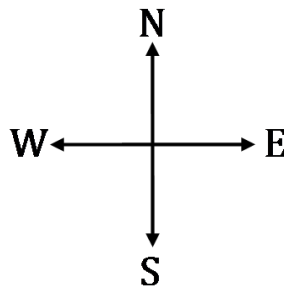
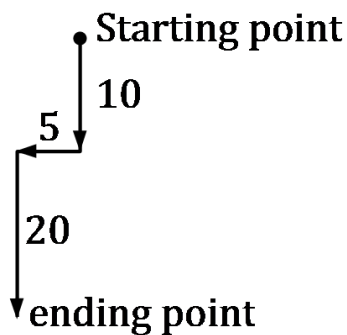
1. Answer: (a)
Potato is a stem, the other three are roots.

Question 37. After walking 10 km, a person turned right and covered a distance of 5 km. Then, turned left and covered a distance of 20 km. In the end, the person was moving towards the south. In which direction did the person start his journey?

1. a. West
2. b. East
3. c. North
4. d. South

Solution:

1. Answer: (d)



The person starts the journey in the south direction.

Question 38. A group of 150000 persons consists of captains and soldiers. There is one captain for every 15 soldiers. The number of captains in the group is :

1. a. 10000
2. b. 9375
3. c. 9275
4. d. 9475

Solution:

1. Answer: (b)
One captain for every 15 soldiers i.e. total 16 in a team.
 $150000/16 = 9375$
Hence, total captains = 9375

Question 39. In an examination, a student scores 3 marks for every correct answer and loses one mark for every wrong answer. If she attempts all the 120 questions and secures 80 marks, the number of questions she attempted wrongly, is :

1. a. 70
2. b. 50
3. c. 60
4. d. 80

Solution:

1. Answer: (a)
Correct \rightarrow +3 marks (let x correct questions)
incorrect \rightarrow -1 mark (let y incorrect questions)
 $x + y = 120 \dots(1)$
 $3x - y = 80 \dots(2)$
On adding (1) and (2),
 $4x = 200$
 $\Rightarrow x = 50$
Putting value of x in eq. (1),
 $y = 70$
So, the student attempted 70 questions incorrectly.

Question 40. Two statements (I) and (II) are followed by conclusions (1) and (2). Read the statements and conclusions and give the correct answer.

Statements:

(I) Some fans are sweets.

(II) All sweets are tube lights.

Conclusions:

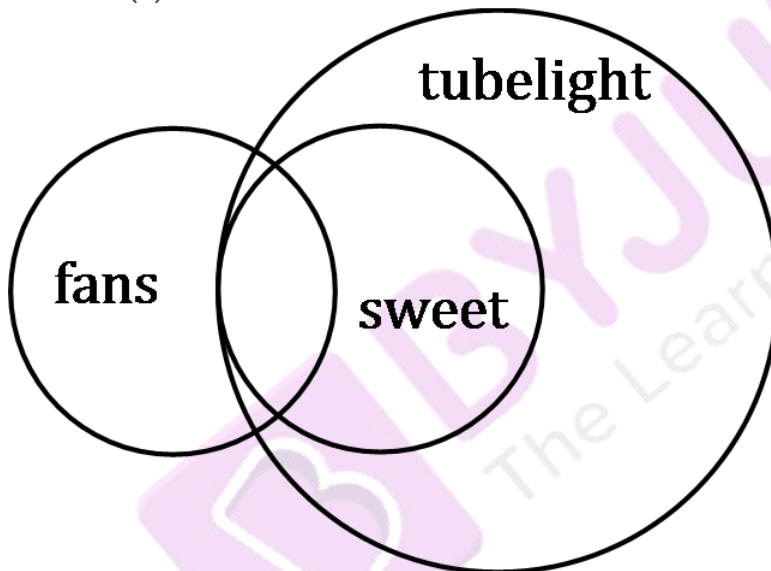
(1) Some fans are tube lights.

(2) Some tube lights are fans.

1. a. Either conclusion follows
2. b. Only conclusion (1) follows
3. c. Only conclusion (2) follows
4. d. Neither conclusion (1) nor (2) follows

Solution:

1. Answer: (a)



So, either conclusion follows.

Direction: (Question Numbers 41 to 46) - The given operators convey new meanings. Read the meanings/instructions and find the answer.

Question 41. If 'x' means '+', '÷' means '-', '-' means 'x' and '+' means '÷' then : $8 \times 7 - 8 + 40 \div 2 =$

1. a. 48
2. b. 68
3. c. $7\frac{1}{2}$
4. d. 7

Solution:

1. Answer: (c)

$$\begin{array}{cccc}
 8 \times 7 - 8 + 40 \div & & & \\
 \downarrow & \downarrow & \downarrow & \downarrow \\
 + & \times & \div & - \\
 \\
 = 8 + 7 \times 8 \div 40 - 2 & & & \\
 = 8 + 56 \div 40 - 2 & & & \\
 = 8 + 56/40 - 2 = 6 - 56/40 = 6 + 7/5 & & & \\
 = 37/5 = 7\% & & &
 \end{array}$$

Question 42. If '-' means '÷', '+' means '×', '÷' means '-' and '×' means '+' then which of the following is correct?

1. a. $52 \div 4 + 5 \times 8 - 2 = 36$
2. b. $43 \times 7 \div 5 + 4 - 8 = 25$
3. c. $36 \times 4 - 12 + 5 \div 3 = 420$
4. d. $36 - 12 \times 6 \div 3 + 4 = 60$

Solution:

1. Answer: (a)

$$\begin{array}{l}
 - \rightarrow \div \\
 + \rightarrow \times \\
 \div \rightarrow - \\
 \times \rightarrow +
 \end{array}$$

Solving Option (a) we get

$$\begin{array}{l}
 52 - 4 \times 5 + 8 \div 2 \\
 = 52 - 20 + 4 \\
 = 36 \text{ (correct)}
 \end{array}$$

Question 43. The following relation became incorrect due to the interchange of two signs. Which of the two signs when interchanged makes the relation correct?

$$7 \div 8 \times 2 - 16 + 2 = 15$$

1. a. + and -
2. b. + and ÷
3. c. + and ×
4. d. ÷ and ×

Solution:

1. Answer: (b)

$$\begin{aligned}7 \div 8 \times 2 - 16 + 2 \\ \text{Interchanging } + \text{ and } \div \text{ we get} \\ 7 + 8 \times 2 - 16 \div 2 \\ 7 + 16 - 8 \\ = 15\end{aligned}$$

Question 44. If the interchanges are made in signs and numbers, which of the following would be correct?

Interchanges in signs : + and ×

Interchanges in numbers : 4 and 5

1. a. $5 \times 4 + 20 = 40$
2. b. $4 \times 5 + 20 - 10 = 95$
3. c. $5 \times 4 + 20 = 104$
4. d. $5 \times 4 + 20 = 75$

Solution:

1. Answer: (c)
Option (a)
 $5 \times 4 + 20$
 $4 + 5 \times 20 = 104 \neq 40$
Option (b)
 $4 \times 5 + 20 - 10$
 $5 + 4 \times 20 - 10$
 $5 + 80 - 10 = 75 \neq 95$
Option (c)
 $5 \times 4 + 20$
 $4 + 5 \times 20$
 $4 + 100 = 104$
Option (d)
 $5 \times 4 + 20$
 $4 + 5 \times 20 = 104 \neq 75$

Question 45. If $5*7 = 74$ and $2*8 = 68$, then $7*8$ is :

1. a. 56
2. b. 113
3. c. 103
4. d. 123

Solution:

1. Answer: (b)

$$5 * 7 = 74$$

↓ ↓

$$5^2 + 7^2 = 74$$

and,

$$2 * 8 = 68$$

↓ ↓

$$2^2 + 8^2 = 68$$

So,

$$7 * 8$$

↓ ↓

$$7^2 + 8^2 = 49 + 64 = 113$$

Question 46. If $17 + 22 = 12$ and $26 + 19 = 18$, then $(10 + 20) + (12 + 2)$ is:

1. a. 44
2. b. 16
3. c. 24
4. d. 8

Solution:

1. Answer: (d)

$$17 + 22 = 12$$

$$\begin{array}{ccc} \downarrow\downarrow & & \downarrow\downarrow \\ 1+7 & + & 2+2 = 12 \end{array}$$

and $26 + 19 = 18$

$$\begin{array}{ccc} \downarrow\downarrow & & \downarrow\downarrow \\ 2+6 & + & 1+9 = 18 \end{array}$$

So, $(10 + 20) + (12 + 2)$

$$\begin{array}{ccccccc} \downarrow\downarrow & \downarrow\downarrow & \downarrow\downarrow & \downarrow\downarrow & \downarrow\downarrow & \downarrow\downarrow & \downarrow \\ 1+0 & + & 2+0 & + & 1+2 & + & 2 = 8 \end{array}$$

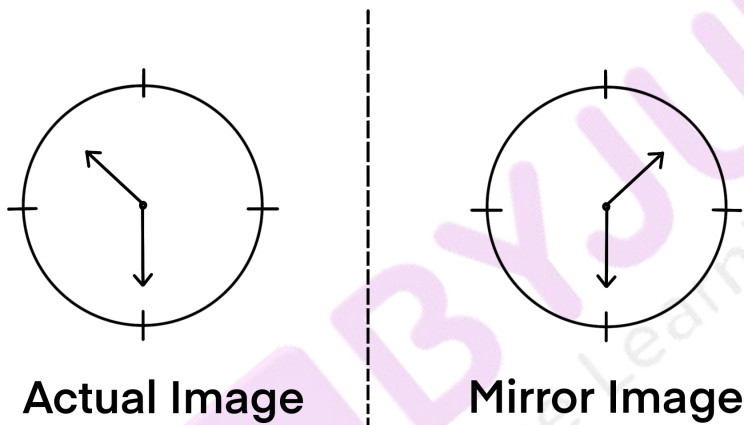
Direction: (Question Numbers 47 to 54) - Read the questions and choose the appropriate answer.

Question 47. A mirror is placed in front of a clock. The clock shows the time 5 hours 50 minutes. The reflection in the mirror is:

1. a. 6 hours 10 min
2. b. 5 hours 10 min
3. c. 6 hours 50 min
4. d. 5 hours 50 min

Solution:

1. Answer: (a)



Mirror image of clock = 6:10

Question 48. The angle between the hour hand and minute hand when the time is 6 hours 45 minutes, is:

1. a. 60°
2. b. 62.5°
3. c. 65°
4. d. 67.5°

Solution:

1. Answer: (d)

Angle moved by hour hand in every minutes = $360/12 \times 60 = 0.5^\circ$

Angle moved by hour hand in every minutes = $360/60 = 6^\circ$

Starting from 6 o'clock, in 45 minute hour hand will travel $45 \times 0.5^\circ = 22.5^\circ$

Starting from 6 o'clock, in 45 minute hand will travel $45 \times 6^\circ = 270^\circ$

Angle between them $270^\circ - 22.5^\circ = 247.5^\circ$

But they already had angle of 180° between them at 6 o'clock
So, the angle between them now is $247.5^\circ - 180^\circ = 67.5^\circ$

Question 49. Raj introduced a girl as the daughter of the daughter of his Aunt's mother. The girl is Raj's:

1. a. daughter
2. b. sister
3. c. grand daughter
4. d. mother

Solution:

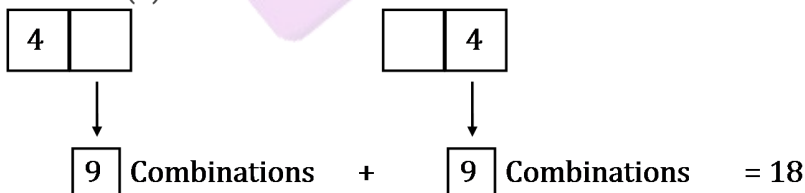
1. Answer: (b)
Raj's Aunt's mother
↓
Raj's Aunt (Daughter 1)
↓
Raj → (Daughter 2) girl
So, sister is the correct option.

Question 50. The number of combinations of two-digit numbers having 4, can be made from the numbers 1, 2, 3, 4, 5, 6, 7, 8 and 9 is

1. a. 16
2. b. 11
3. c. 17
4. d. 18

Solution:

1. Answer: (c)



But 44 is repeated twice, hence total combination is $9 + 9 - 1 = 17$

Question 51. The number of numbers from 1 to 200 which are divisible by 10 but not divisible by 30, is :

1. a. 13
2. b. 15

3. c. 14
4. d. 20

Solution:

1. Answer: (c)
Total number divisible by 10 from 1 to 200 are
10, 20, 40, 50, 70, 80, 100, 110, 130, 140, 160, 170, 190, 200 - **20**
Here, 30, 60, 90, 120, 150, 180 are divisible by 30 - **6**
= 20 - 6
= 14
Total which are divisible by 10 but not divisible by 30, is **14**
Therefore, option (c) is correct.

Question 52. A class of students strength 44 took an ability test. Five of them can not qualify for the test. Out of the remaining qualified students Sam ranked 18th from the last. His rank from the top is :

1. a. 22
2. b. 23
3. c. 24
4. d. 21

Solution:

1. Answer: (a)
Total number of students = 40
Number of failed students = 05
Number of passed students = 39
Sam ranked 18th from the last = Sam's rank from the top = $39 - 18 + 1 = 22$

Question 53. Which of the following statements are true?

- (a) Zero is neither positive nor negative.
 - (b) 1 is neither prime nor composite.
 - (c) The set of non-negative numbers is different from the set of positive numbers.
 - (d) 2 is a prime but not composite.
1. a. (a) and (b) only
 2. b. (a), (b) and (c) only
 3. c. (a), (c) and (d) only
 4. d. All of the above

Solution:

1. Answer: (d)
 - (a) Zero is neither positive nor negative is a true statement.
 - (b) The only factor of 1 is 1. A prime number has exactly two factors so 1 isn't prime. A composite number has more than 2 factors, so 1 isn't composite. So, the given statement is true.
 - (c) A non-negative is greater than or equal to zero, but a positive number is always greater than zero, hence the statement is true.
 - (d) A prime number has exactly two factors, and a composite number has more than 2 factors, hence the given statement is true.Hence, all statements are true.
-

Question 54. Which of the following are not true?

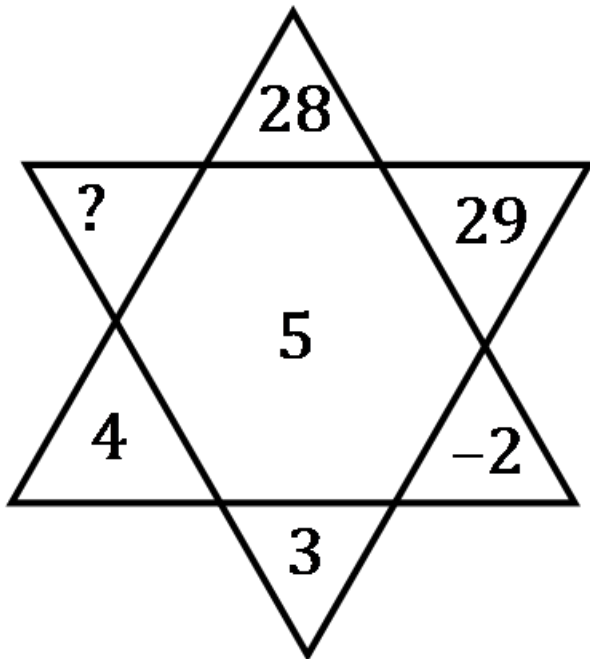
- (a) All the integers are rational numbers.
 - (b) π is an irrational number.
 - (c) A rational number need not be a proper fraction.
 - (d) 0 is a rational number.
1. a. None of the above
 2. b. (a) and (d) only
 3. c. (a) and (b) only
 4. d. All of the above

Solution:

1. Answer: (a)
By the concept of the number system, all are true, and none of the above is wrong.
-

Direction: (Question Numbers 55 to 58) - Find the missing character.

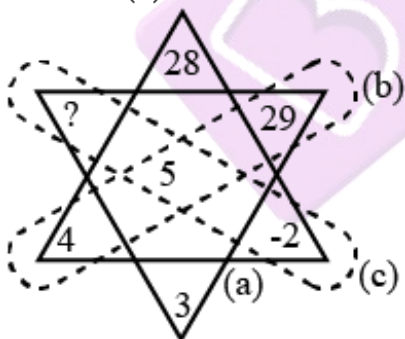
Question 55. Find the missing character.



1. a. 23
2. b. 22
3. c. 27
4. d. 3

Solution:

1. Answer: (a)

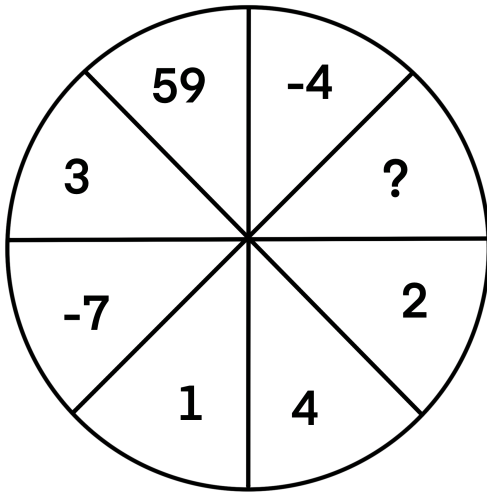


$$52 + 3 = 28 \text{ (a)}$$

$$52 + 4 = 29 \text{ (b)}$$

So, $52 - 2 = 23$.

Question 56. Find the missing character.

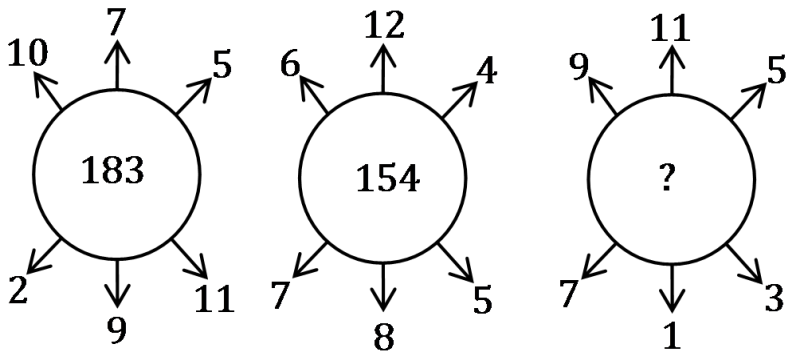


1. a. 348
2. b. -348
3. c. -8
4. d. 7

Solution:

1. Answer: (b)
 $1^3 - 5 = -4$
 $2^3 - 5 = 3$
 $4^3 - 5 = 59$
 Similarly,
 $(-7)^3 - 5 = -348$

Question 57. Find the missing character.



1. a. 86

2. b. 73
3. c. 33
4. d. 104

Solution:

1. Answer: (b)
 $(10 \times 11) + (7 \times 9) + (5 \times 2) = 183$
 $(6 \times 5) + (12 \times 8) + (5 \times 2) = 154$
Similarly,
 $(9 \times 3) + (7 \times 5) + (11 \times 1) = 73$

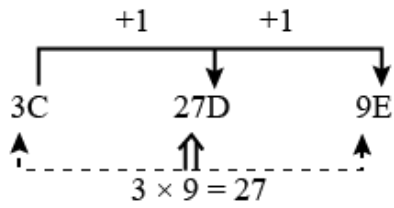
Question 58. Find the missing character.

3C	27D	9E
7I	84K	12M
5A	?	13G

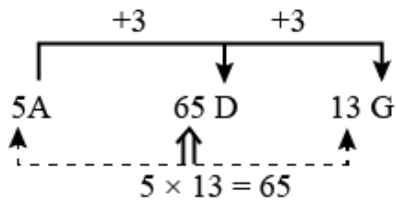
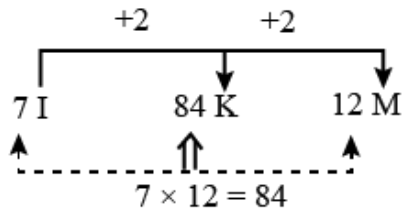
1. a. 65D
2. b. 65G
3. c. 35H
4. d. 65B

Solution:

1. Answer: (a)



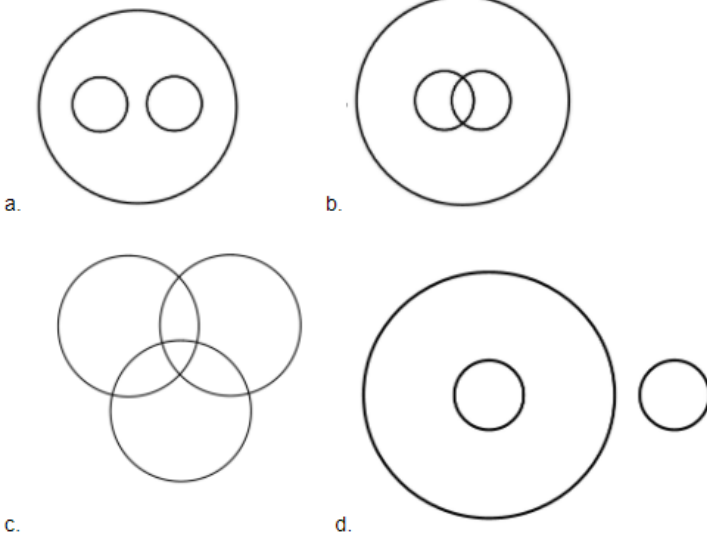
Similarly,



Therefore Option (a) is correct

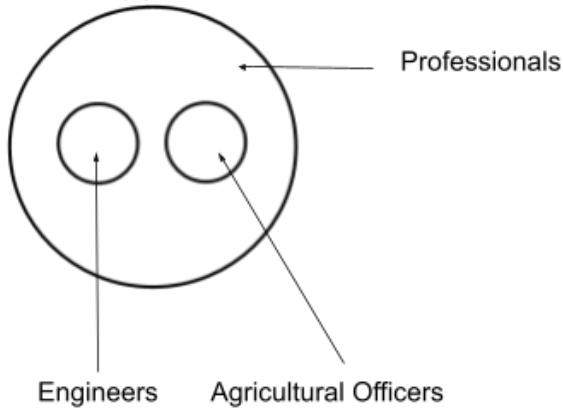
Direction: (Question Numbers 59 to 61) - Select from the given diagrams (a), (b), (c) or (d), the one that illustrates the relationship among the three classes.

Question 59. Engineers, Agricultural Officers, Professionals



Solution:

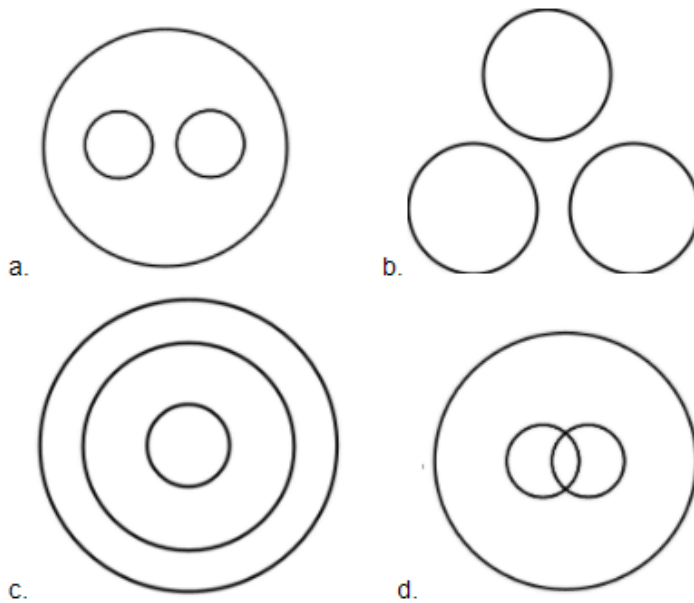
1. Answer: (a)



So option (a) is correct

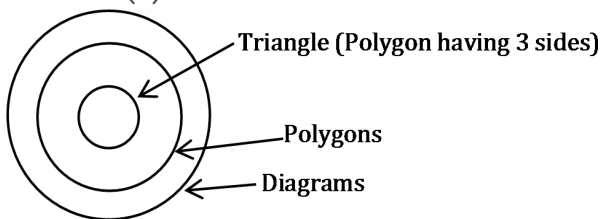


Question 60. Diagrams, triangles, polygons



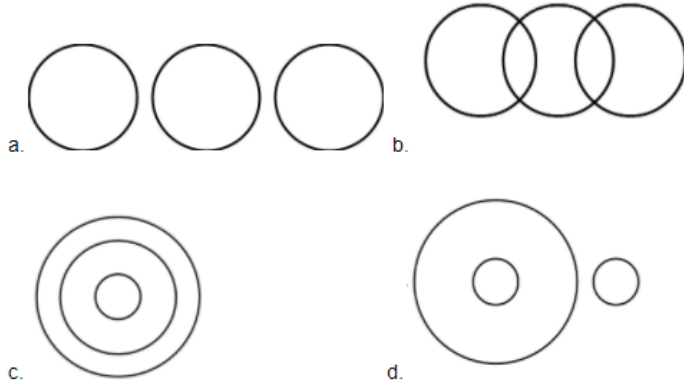
Solution:

1. Answer: (c)



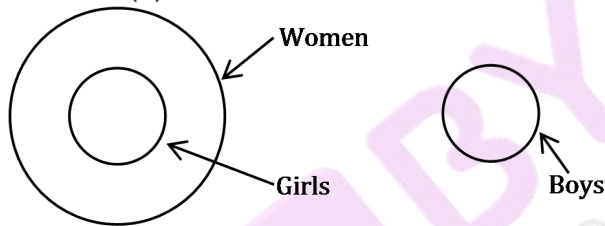
So option (c) is correct.

Question 61. Boys, girls women



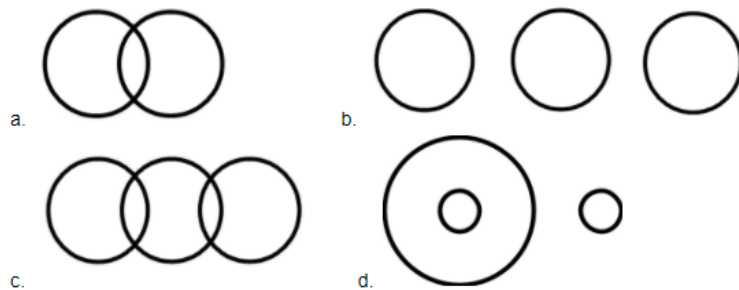
Solution:

1. Answer: (d)



So option (d) is correct.

Direction: (Question Numbers 62 and 63) - Select from the given diagrams (a), (b), (c) or (d) that one which illustrates the relationship among given classes.



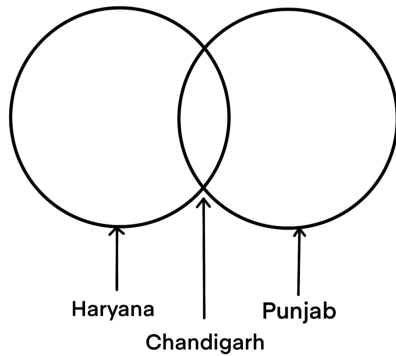
Question 62. Haryana, Punjab, Chandigarh

1. a. (b)
2. b. (c)
3. c. (a)

4. d. (d)

Solution:

1. Answer: (c)

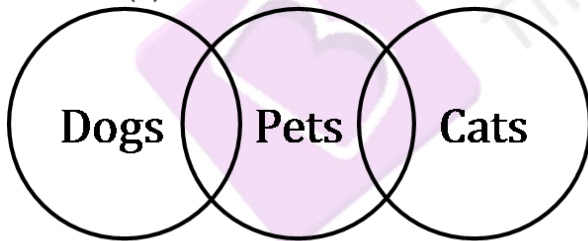


Question 63. Pets, Cats, Dogs

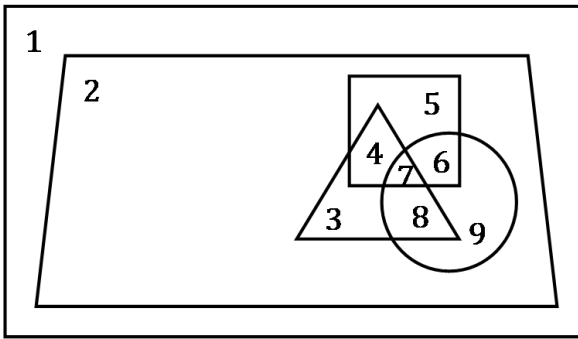
1. a. (a)
2. b. (b)
3. c. (d)
4. d. (c)

Solution:

1. Answer: (d)



Direction: (Question Numbers 64 to 68) - In the following figure, the trapezium stands for employed, the square stands for high salaried, the triangle stands for IT sector, the rectangle stands for people and the circle stands for managerial cadre. Study and go through the figure carefully and answer the questions.

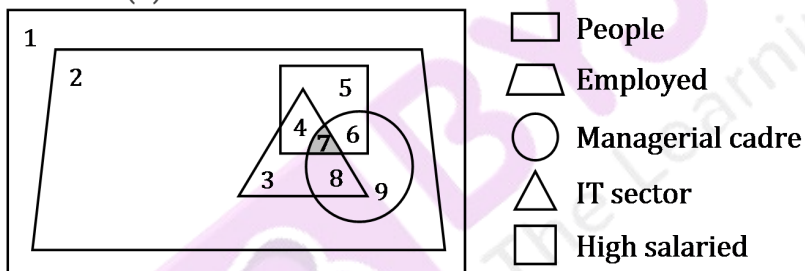


Question 64. The region which represents high salaried, managerial cadre in IT employees is

1. a. 7
2. b. 4
3. c. 3
4. d. 8

Solution:

1. Answer: (a)

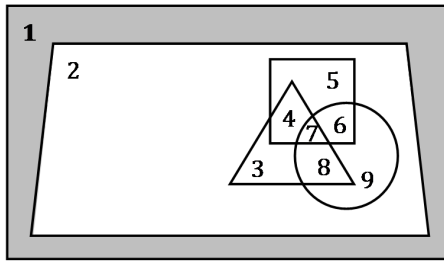


Question 65. The unemployed people represents the region :

1. a. 2
2. b. 9
3. c. 5
4. d. 1

Solution:

1. Answer: (d)



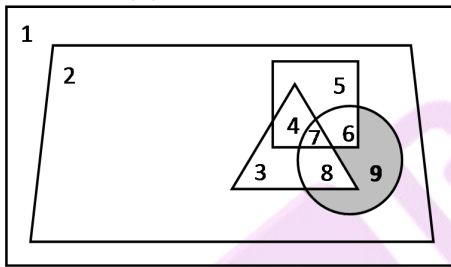
- People
- Employed
- Managerial cadre
- IT sector
- High salaried

Question 66. Low salaried Managerial Cadre, non-IT employees represents the region:

1. a. 8
2. b. 9
3. c. 6
4. d. 5

Solution:

1. Answer: (b)



- People
- Employed
- Managerial cadre
- IT sector
- High salaried

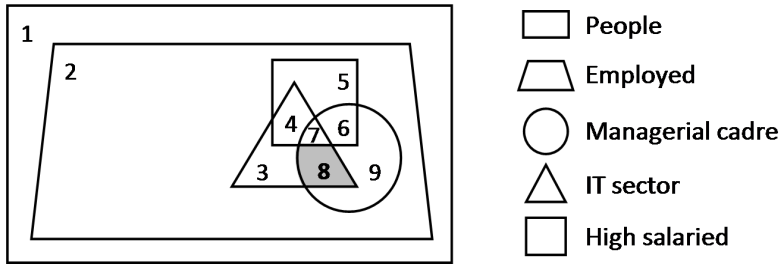
Question 67. The region 8 represents :

1. a. High salaried, IT professionals
2. b. Low salaried, men IT professionals
3. c. Low salaried, women IT professionals
4. d. Managerial cadre low salaried IT professionals

Solution:

1. Answer: (d)

Since region 8 is made from Δ and O. Therefore, it represents managerial cadre low salaried who are IT professionals.



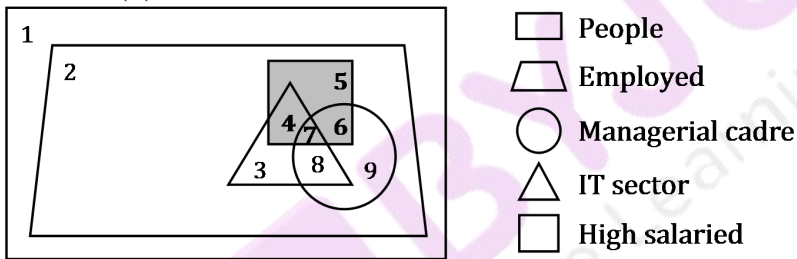
- People
- Employed
- Managerial cadre
- IT sector
- High salaried

Question 68. The regions 4, 5, 6 and 7 represent :

1. a. High salaried people
2. b. High salaried IT sector people
3. c. High salaried managerial cadre people
4. d. Unemployed people

Solution:

1. Answer: (a)



- People
- Employed
- Managerial cadre
- IT sector
- High salaried

Since, 4, 5, 6 and 7 belong to . So, this block represents high salaried people.

Direction: (Question Numbers 69 to 72) - Seven persons A, B, C, D, E, F and G are standing in a row left to right. 'A' is standing left to 'D' but right to 'C'. 'G' is standing right to 'E' and left to 'C'. 'B' is standing right to 'D' and left to 'F'.

Read the above information and answer the following questions.

Question 69. The person who is standing at the right end of the row is:

1. a. B
2. b. C
3. c. D
4. d. F

Solution:

1. Answer: (d)
A is left of D, but right of C = CAD(1)
G is Right to E and left to C = EGC(2)

'B' is Right to D and left to F = DBF(3)
From (1), (2) and (3),
The final arrangement is EGCADB
Right end of the row is 'F'.
So, option (d) is correct.

Question 70. The person who is standing in the left end of the row is:

1. a. A
2. b. F
3. c. E
4. d. G

Solution:

1. Answer: (c)
The final arrangement is
EGCADB
E is at the left end of the row
So, option (c) is correct.
-

Question 71. The person who is standing in the middle of the row is:

1. a. A
2. b. C
3. c. E
4. d. E

Solution:

1. Answer: (a)
The final arrangement is
EGCADB
A is in the middle of the row
-

Question 72. The person standing right of G is

1. a. B
2. b. C
3. c. A
4. d. F

Solution:

1. Answer: (b)
The final arrangement is

EGCDBF

The person standing right of G is 'C'.

So, option (b) is correct.

Direction: (Question Numbers 73 to 75)

(i) There are four-person:

P, Q, R, S

(ii) They wear different colour caps - Red, Green, Blue and White.

(iii) P is neither wearing White nor Green.

(iv) Q is not wearing White.

(v) S wears Red.

Based on the above information answer the questions.

Question 73. R wears:

- a. White cap
- b. Green cap
- c. Red cap
- d. Blue cap

Solution:

- Answer: (a)

From the given information we have

	P	Q	R	S
Red	×	×	×	✓
Green	×	✓	×	×
Blue	✓	×	×	×
White	×	×	✓	×

R wears, 'White Cap'

Question 74. P wears:

- a. White cap
- b. Green cap

3. c. Red cap
4. d. Blue cap

Solution:

1. Answer: (d)
Using the table we have
P wears 'Blue cap'

Question 75. Q wears:

1. a. White cap
2. b. Green cap
3. c. Red cap
4. d. Blue cap

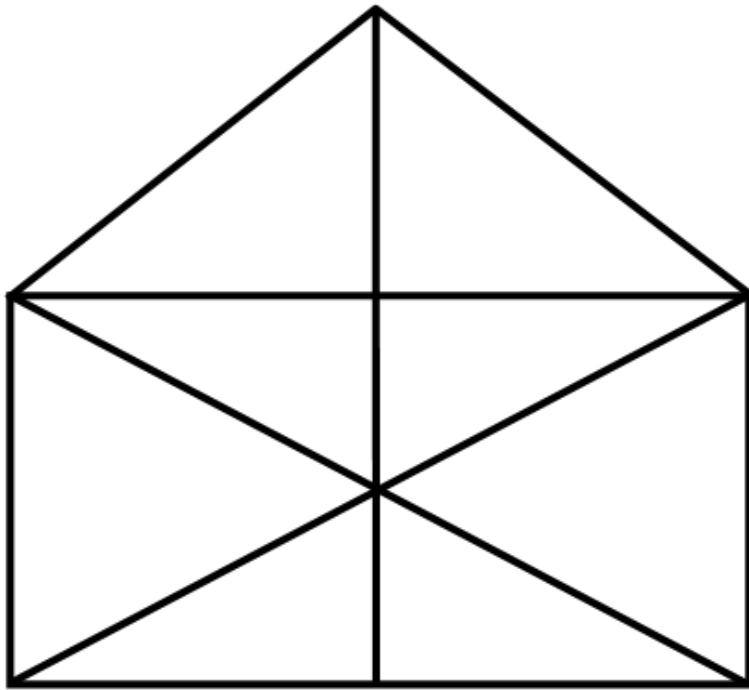
Solution:

1. Answer: (b)
Using the table we have
Q wears 'Green cap'

Direction: (Question Numbers 76 to 79) - Go through the diagrams in each of the questions and choose the answer.

Question 76. The number of triangles in the given diagram is:

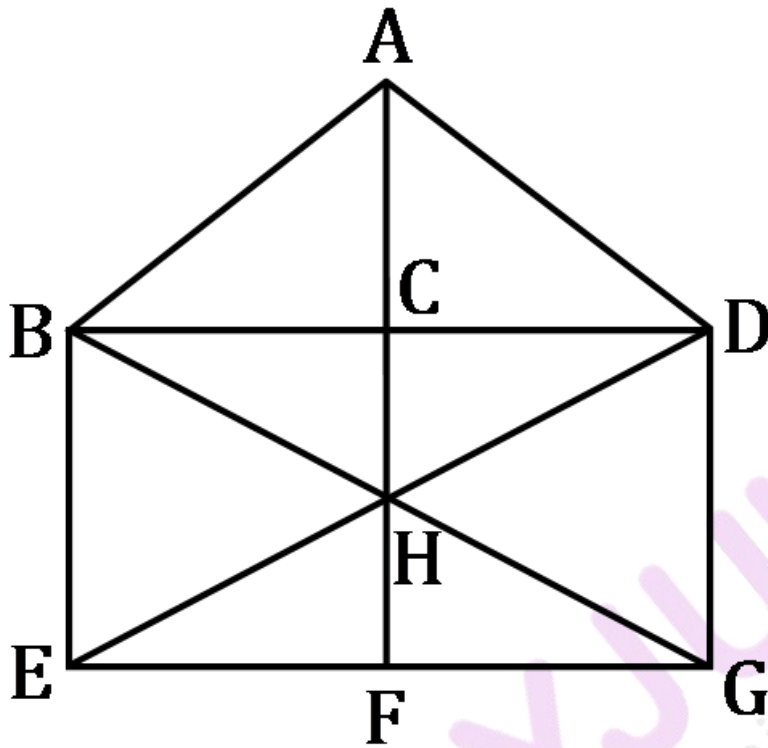




1. a. 17
2. b. 11
3. c. 8
4. d. 10

Solution:

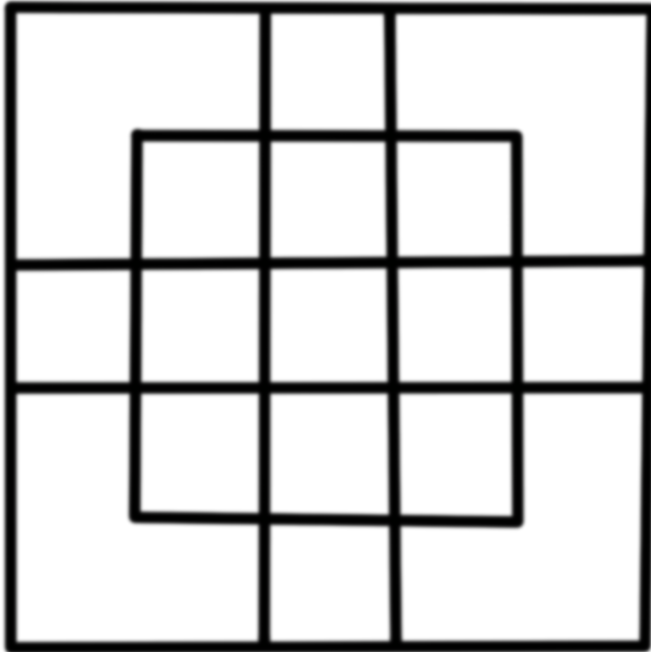
1. Answer: (a)



ABC, ACD, ABD, BCH, HCD, BDH, ABH, ADH, BHE, HEF, DHG, HGF, EHG, BEG, BDG, DEG, BED

No. of triangle = 17.

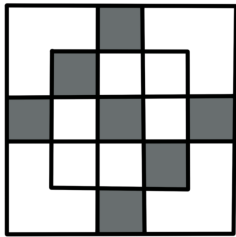
Question 77. The number of squares in the given figure is :



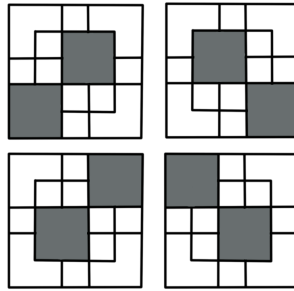
1. a. 18
2. b. 27
3. c. 21
4. d. 24

Solution:

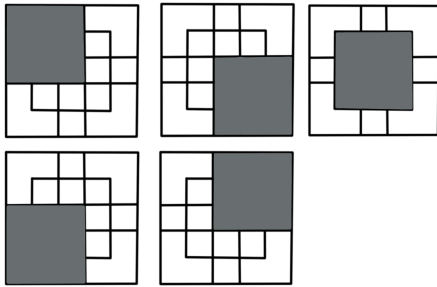
1. Answer: (b)



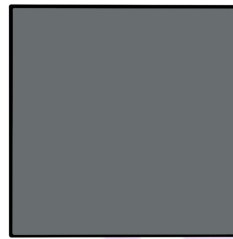
1x1 Square=13



2x2 Squares=8



3x3 Squares=5

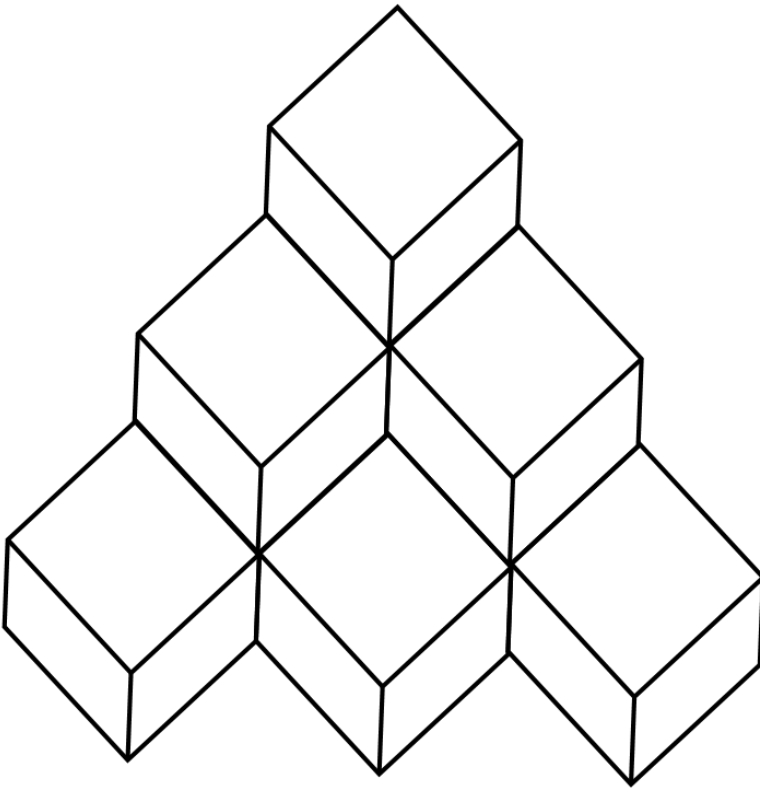


4x4 Square =1

Total square = $13 + 8 + 5 + 1 = 27$

Question 78. The number of cubes in the following figure is :





1. a. 6
2. b. 8
3. c. 10
4. d. 9

Solution:

1. Answer: (c)
No. of square = $1 + 3 + 6 = 10$

Question 79. The number of dots lie opposite to the face having three dots, when the given figure is folded to form a cube, is :

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

Solution:

1. Answer: (a)
When we fold this up, 3 will come on base and 5 will come on top.
So, the opposite of 3 will be 5.

Question 80. Father tells his son "I was your present age when you were born". If the father's age is 48 now, how old was the boy 6 years back ?

1. a. 16
2. b. 17
3. c. 18
4. d. 19

Solution:

1. Answer: (c)
Let the age of father be x (when his son was born)
At present, his son's age = x
If father goes ' x ' years back then he is at his son's age
 \Rightarrow father $x = 48 - x$
 $\Rightarrow x = 24$
Boys present age = 24
Boy's age 6 years before = $24 - 6 = 18$ years

Question 81. The water image of Q P N 5 7 6 4 is :

- a. Q P N 2 7 e 4
- b. Q P N 2 7 e 4
- c. Q P N 2 7 e 4
- d. Q P N 2 7 e 4

Solution:

1. Answer: (b)

Actual image

Q P N 5 7 6 4

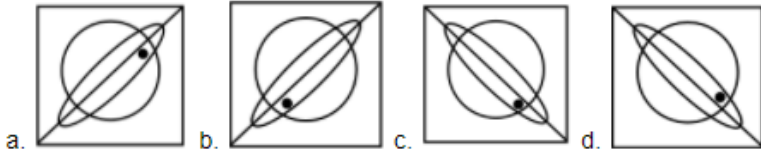
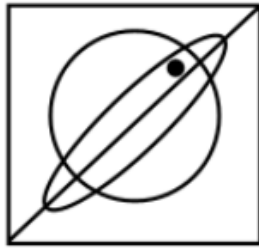


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Water image



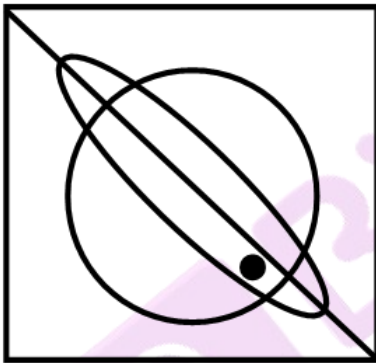
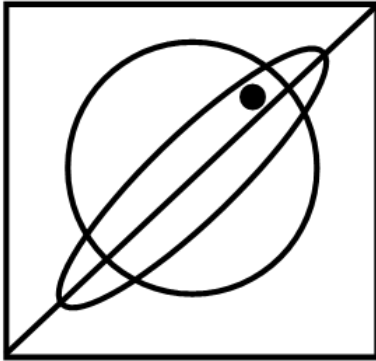
Question 82. The water image of the given figure is:



Solution:

1. Answer: (c)

Actual image



Water image

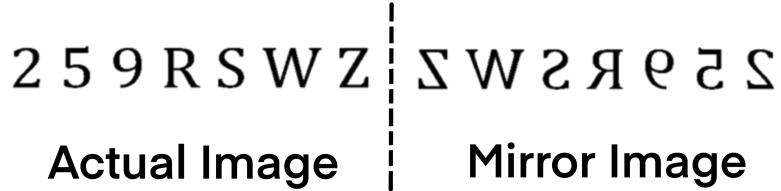
So option (c) is correct

Question 83. The mirror image of 2 5 9 R S W Z is:

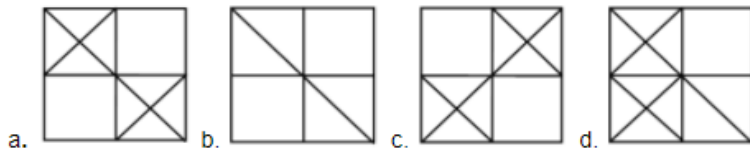
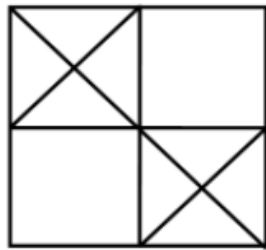
- a. Z 2 9 R 2 W Z
- b. Z W S R 6 2 Z
- c. Z W 2 R 6 2 Z
- d. Z W 2 R 9 5 Z

Solution:

1. Answer: (a)

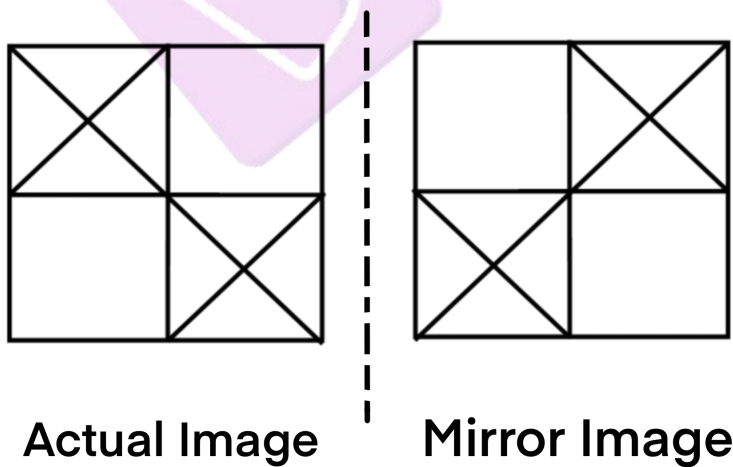


Question 84. The mirror image of the given figure is:



Solution:

1. Answer: (c)



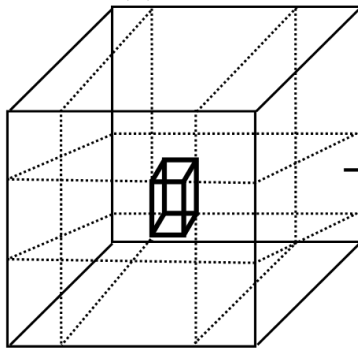
Question 85. A cube is coloured green on all six faces. The side of the cube is 3 cm. It is cut

into smaller cubes of equal size of length 1 cm. The number of cubes without colour on any faces is/are:

1. a. 1
2. b. 3
3. c. 4
4. d. 0

Solution:

1. Answer: (a)



Without any colour
on any face

No. of cube = 1

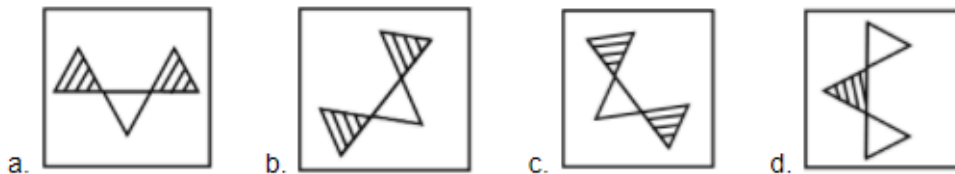
$n = \sqrt{\text{Total small cubes}}$

$n = \sqrt{27} = 3$

No. of Required cube = $(n - 2)^3$ (from opposite side outer layer has to be removed)

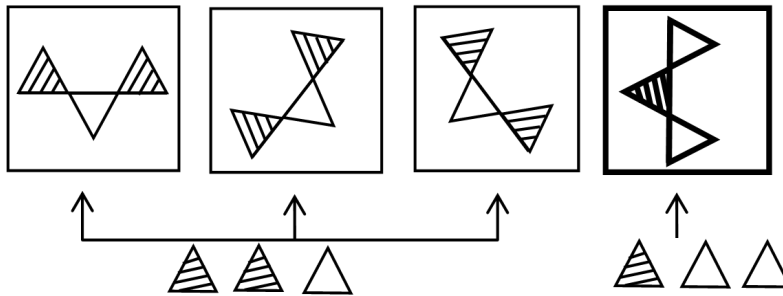
$(3 - 2)^3 = 1^3 = 1$

Question 86. Select the unlike figure.



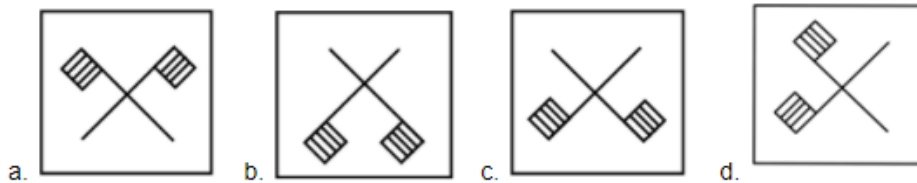
Solution:

1. Answer: (d)



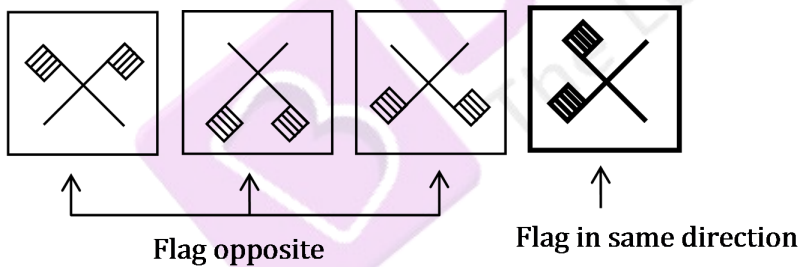
So, unlike the figure is (4). All have two shaded parts except (4).
So, option (d) is correct.

Question 87. Select the unlike figure.



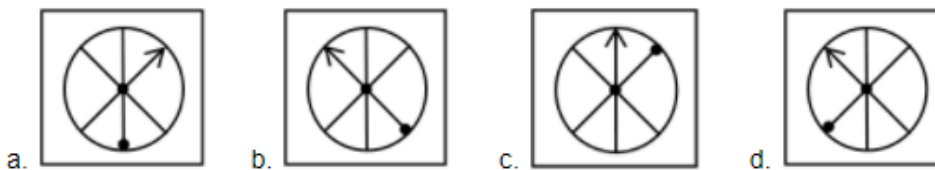
Solution:

1. Answer: (d)



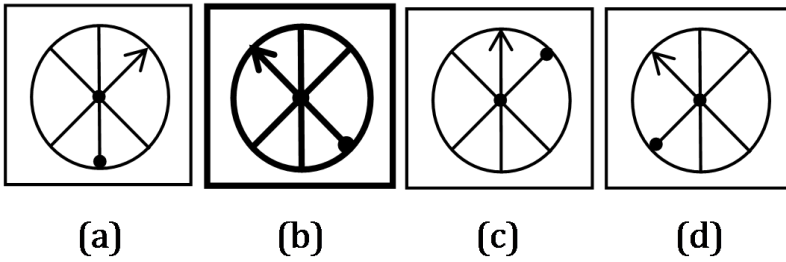
So, option (d) is correct.

Question 88. Select the unlike figure.



Solution:

1. Answer: (b)

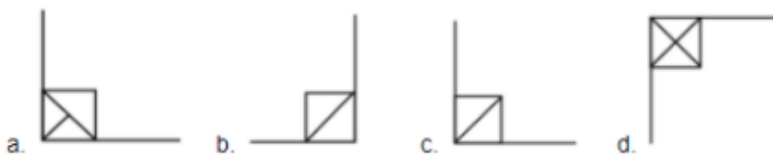
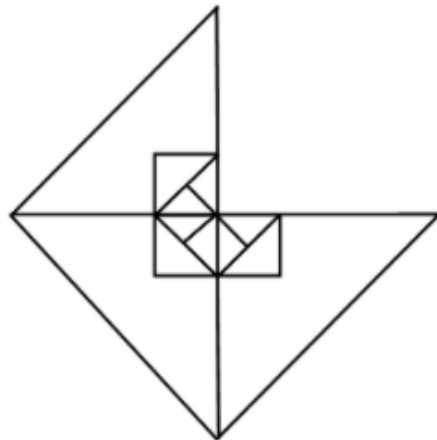


In the (2) ↑ and ↓ lie on the same diameter of the circle, however, in (1), (3), (4)

↑ and ↓ lie on different diameters of the circle.

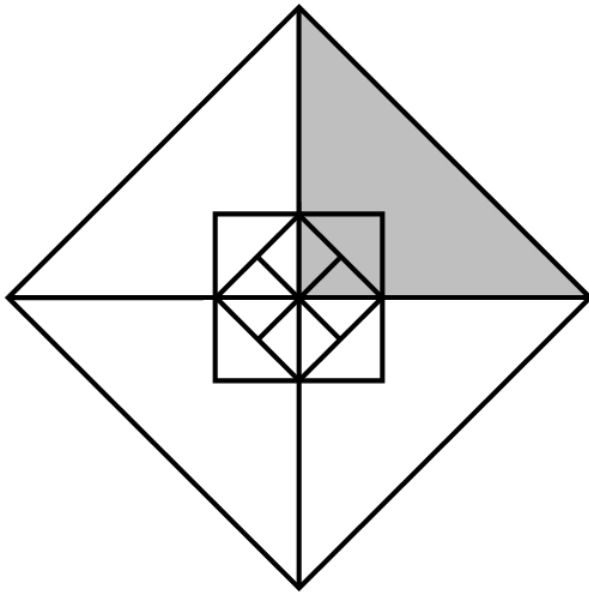
Direction: (Question Number 89) - Select the portion of the picture from the four alternatives (1), (2), (3), (4) to complete the following figure.

Question 89. Select the correct alternative to complete the following figure.



Solution:

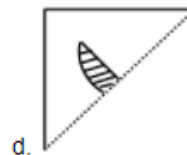
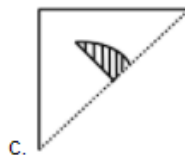
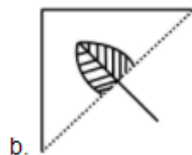
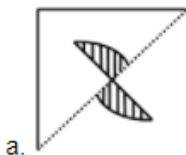
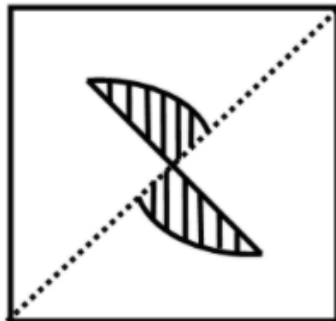
1. Answer: (a)



Since the given figure completes the required diagram.
Therefore, option (a) is correct.

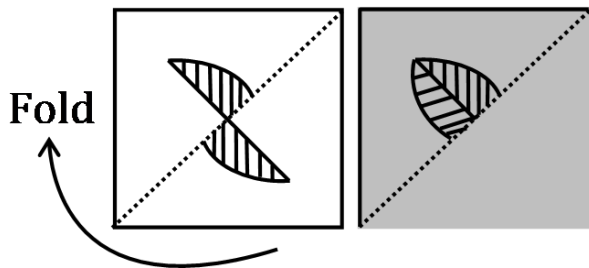
Direction: (Question Number 90) - A square transparent paper with a pattern is given. Choose amongst the four solution figures which would look like the one when the paper is folded at the dotted line.

Question 90. Choose amongst the four solution figures which would look like the one when the paper is folded at the dotted line.



Solution:

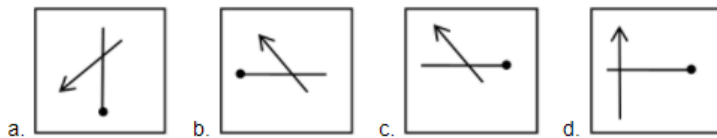
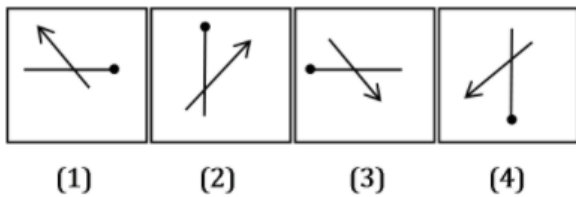
1. Answer: Bonus



None of the options is correct.

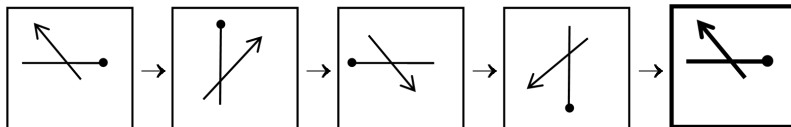
Direction: (Question Numbers 91 to 95) - In each of the following questions, find the answer figure (1), (2), (3) or (4) which would continue the given series of four figures (A), (B), (C) and (D).

Question 91. Find the answer figure



Solution:

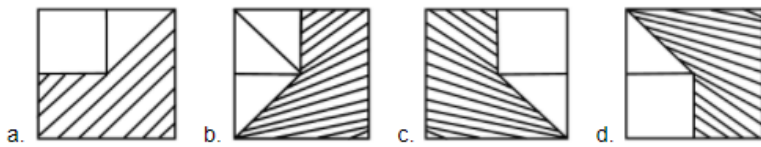
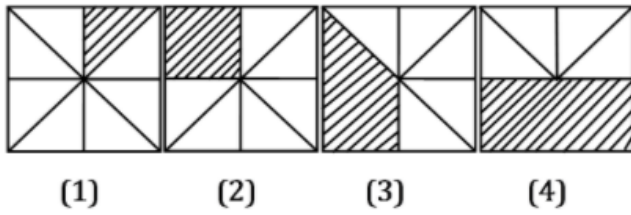
1. Answer: (c)



↑ rotate clockwise

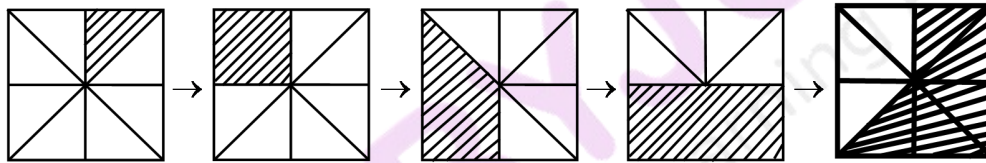
↓ rotate anti clockwise

Question 92. Find the answer figure



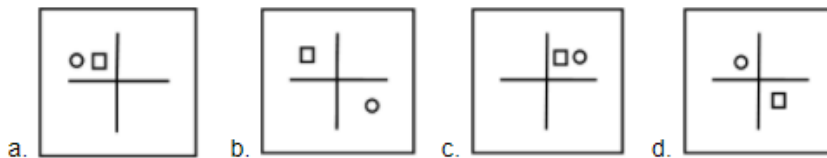
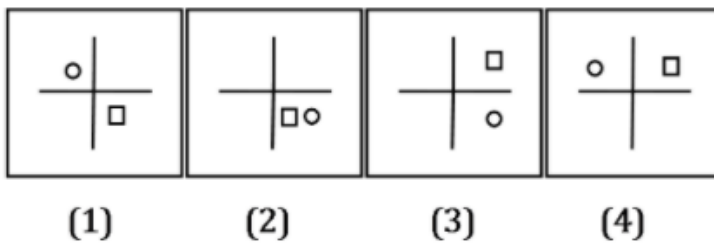
Solution:

1. Answer: (b)



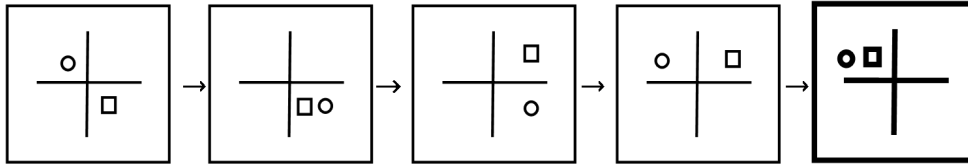
Every time one shaded part is increasing in an anticlockwise direction moving its initial shaded part in the next part simultaneously too.

Question 93. Find the answer figure



Solution:

1. Answer: (a)

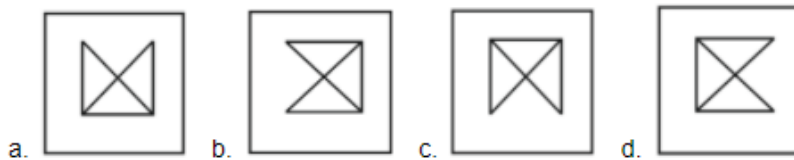
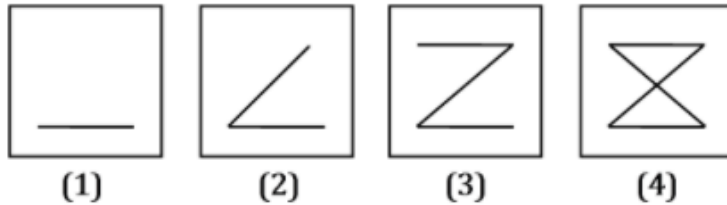


○ symbol is moving diagonally and then stays constant at its position alternatively.

□ symbol stays constant at its position and moves one step forward anticlockwise alternatively.

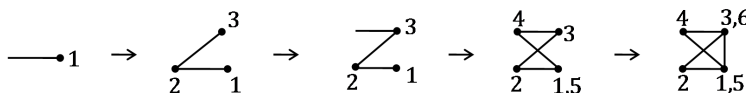
Hence, option (a) is correct.

Question 94. Find the answer figure

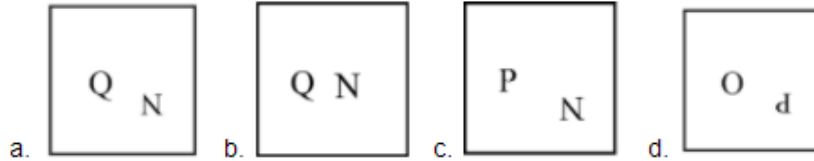
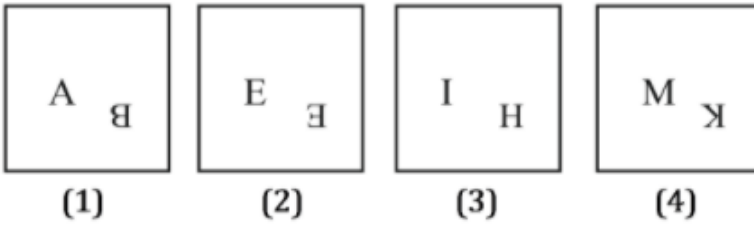


Solution:

1. Answer: (b)



Question 95. Find the answer figure



Solution:

1. Answer: Bonus

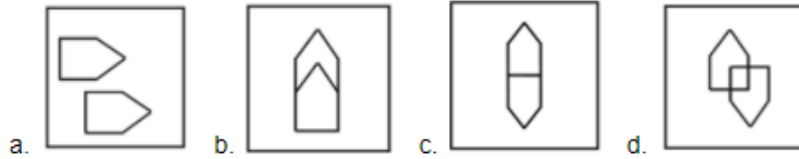
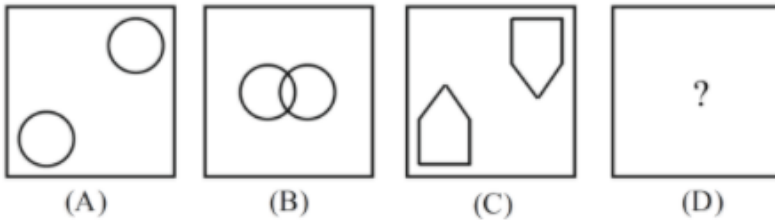
$A \xrightarrow{+3} E \xrightarrow{+3} I \xrightarrow{+3} M \xrightarrow{+3} Q$

$B \xrightarrow{+2} E \xrightarrow{+2} H \xrightarrow{+2} K \xrightarrow{+2} N$

With mirror With mirror With mirror With mirror

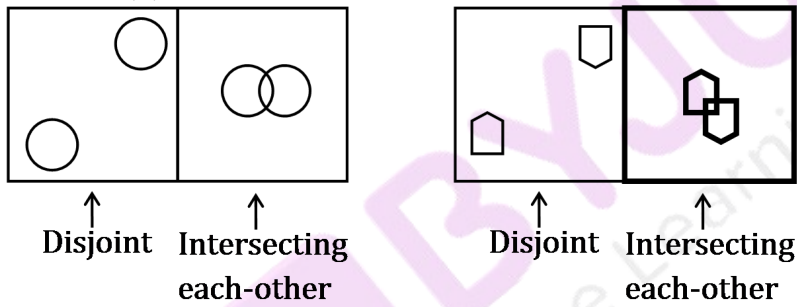
In none of the options, a mirror image of N is given, hence none is correct.

Question 96. The pair of figures (A) and (B) are related in some manner. In the same manner the other pair of figures (C) and (D) are connected. Choose the figure which replaced (D).



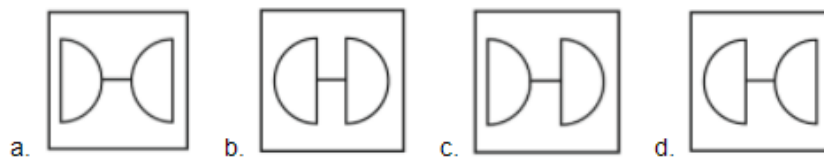
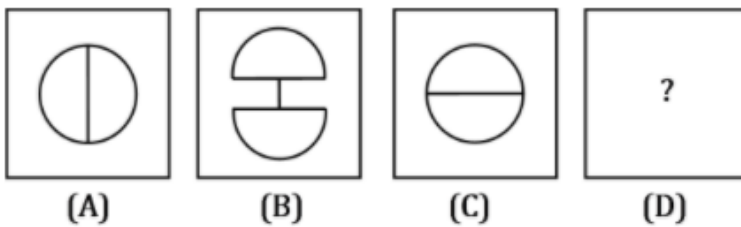
Solution:

1. Answer: (d)



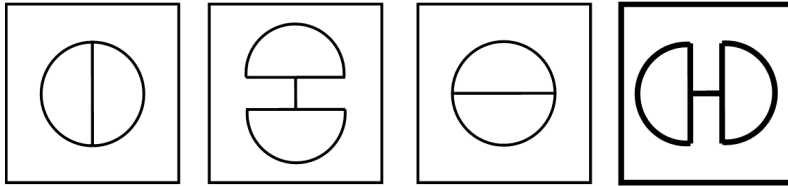
So option (d) is correct

Question 97. Choose the figure which replaced (D).



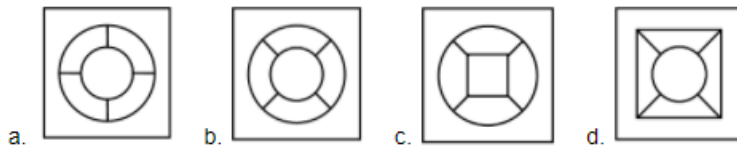
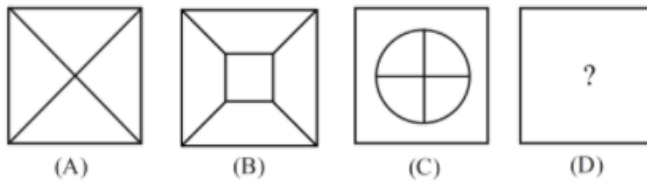
Solution:

1. Answer: (b)



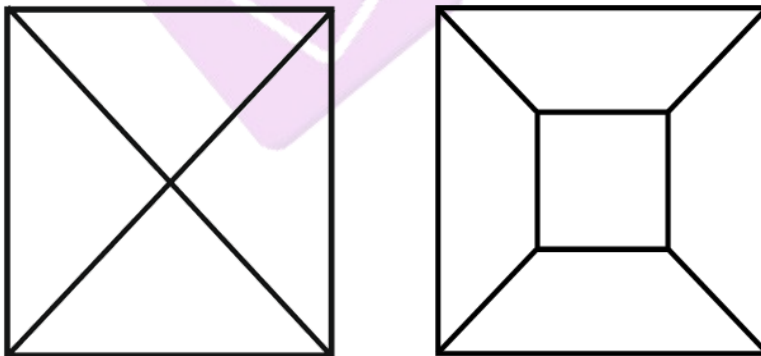
Here, the two semicircles are separated by rotating 90
Hence, option (b) is correct.

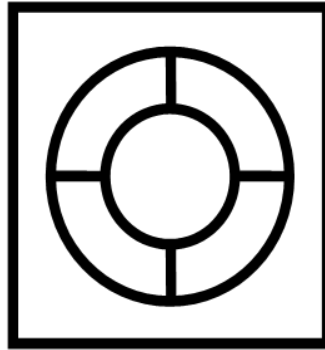
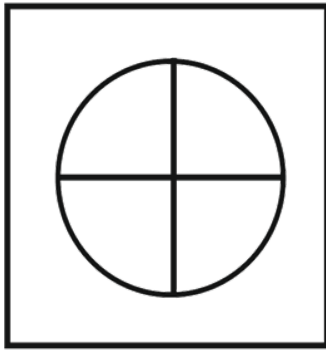
Question 98. Choose the figure which replaced (D).



Solution:

1. Answer: (a)


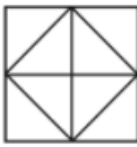
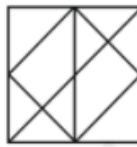





Add a figure in the centre same as the outside figure.
So, option (a) correct.

Question 99. Choose the figure which contains the figure (X)



- a.  b.  c.  d. 

Solution:

1. Answer: (c)

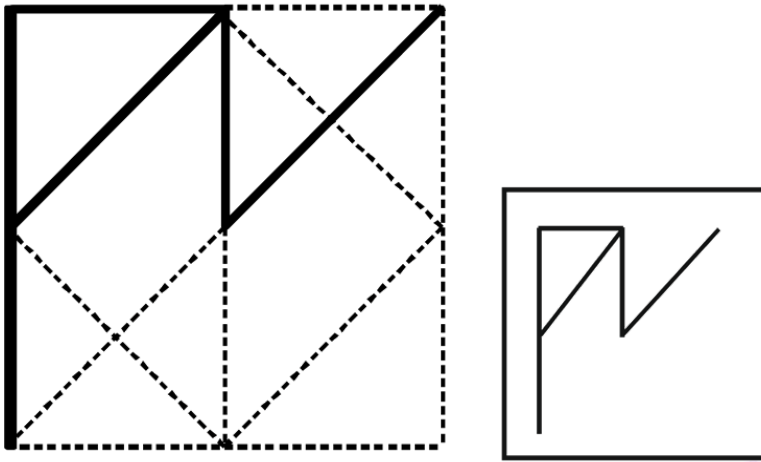
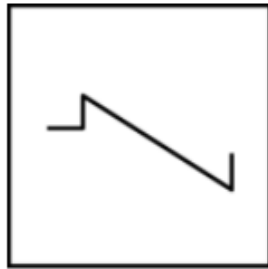


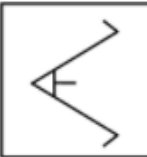
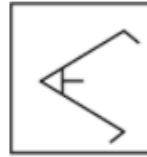


Figure (X) is embedded in (c).
Hence, option (c) is correct.

Question 100. Choose the figure which contains the figure (X)



- a.  b.  c.  d. 

Solution:

1. Answer: (b)

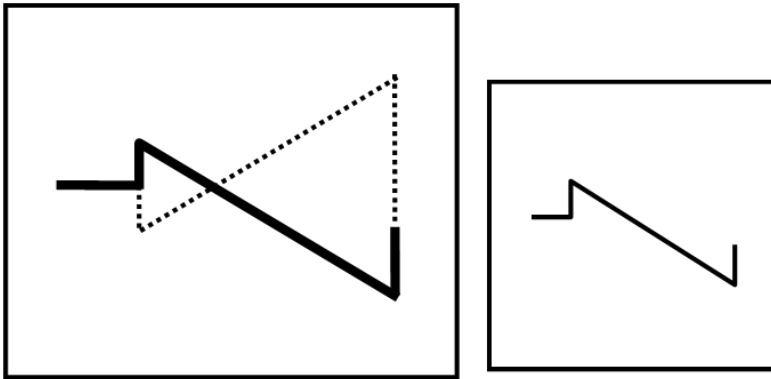


Figure (X) is embedded in (b).
Hence, option (b) is correct.

