

STATE TALENT SEARCH EXAMINATION-2018-19
MENTAL ABILITY TEST (MAT) PAPER & SOLUTION
SCHOLASTIC APTITUDE TEST (SAT) HINTS & SOLUTIONS

1. If '+' means 'x', '-' means '+', '÷' means '-' and 'x' means '÷' then what will be the value of $9+3 \div 4-8 \times 2$?
 (1) 21 (2) -13 (3) 31 (4) 27

Sol. According to question,

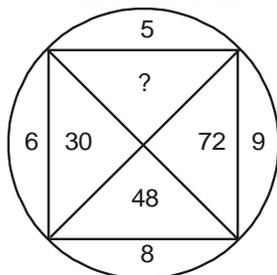
$$= 9 \times 3 - 4 + 8 \div 2$$

$$= 27 - 4 + 4$$

$$= 27$$

Ans. (4)

2. What will be the number put at the place of question mark (?) in the given figure ?



- Sol.** (1) 18 (2) 32 (3) 45 (4) 112
 $6 \times 5 = 30$

$$9 \times 8 = 72$$

$$8 \times 6 = 48$$

$$5 \times 9 = 45$$

Ans. (3)

3. Your maternal grandfather's son has only a sister. What relation do you have to his sister's mother-in-law ?

- (1) Maternal aunt (2) Father's sister (Bhua)
 (3) Grandmother (4) Maternal Grandmother

Sol.

Ans. (3)

4. Direction: Answer the following question which is based on the letter/number sequence:

E K M 3 P 5 R T V Z 9 D I F Q X 4 6 G H J 2 8 W

Which of the following letters/numbers is exactly in the middle between the sixth letter/number from the left end and the ninth letter/number from the right end?

- (1) Z (2) 9 (3) D (4) I

Sol.

Ans. (2)

5. If 29th day of any month was Tuesday, then which day was on 3rd day of the same month?

- (1) Wednesday (2) Thursday (3) Friday (4) Tuesday

Sol. If 29th day is Tuesday, then 3rd day must be Thursday

Ans. (2)

6. If brightness is called darkness, darkness is called white, white is called blue, blue is called red, red is called, green and green is called yellow then what will be the colour of milk?

- (1) red (2) white (3) yellow (4) blue

Sol.

Ans. (4)

7. In a certain code 'DINE' is written as '1537' and 'WORTH' is written as '\$#96@'. Then how will 'WITHER' be written in the same code?

- (1) \$567@9 (2) \$56@79 (3) \$5679@ (4) \$56@71

Sol.

D I N E	W O R T H
1 5 3 7	\$ # 9 6 @
W I T H E R	
\$ 5 6 @ 7 9	

Ans. (2)

8. In a certain code 'APPLE' is written as 'PEALP' and 'PHONE' is written as 'HPENO'. Then how 'HINDI' will be written ?

- (1) IDNIH (2) IHIDN (3) IHNID (4) IHIND

Sol.

A P P L E	P H O N E
↑ ↑	↑ ↑
↘ ↙	↘ ↙
P A E L P	H P E N O

HINDI
IHIDN

Ans. (2)

9. Which year of the following have the same calendar as that of year 2009 ?

- (1) 2013 (2) 2014 (3) 2015 (4) 2016

Sol.

	Leap year						
year	2009	2010	2011	2012	2013	2014	2015
Odd days	1	1	1	2	1	1	

↑
overall zero odd days

Ans. (3)

10. Except one alternative all other given alternatives are alike in a certain way. The odd alternative is

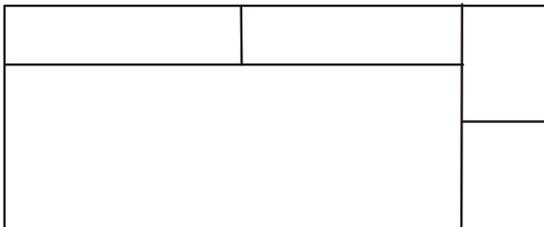
- (1) (9,8,41) (2) (5,12,13) (3) (7,24,25) (4) (3,4,5)

Sol. Except (9,8,41)

all are Pythagorean triplets

Ans. (1)

11. What is the maximum number of rectangles in the following figure?

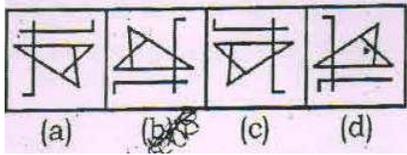


- (1) 6 (2) 7 (3) 8 (4) 9

Sol.

Ans. (4)

12. One figure out of the four given figures (a), (b), (c), (d) does not correlate with the rest of the figures. That odd figure is

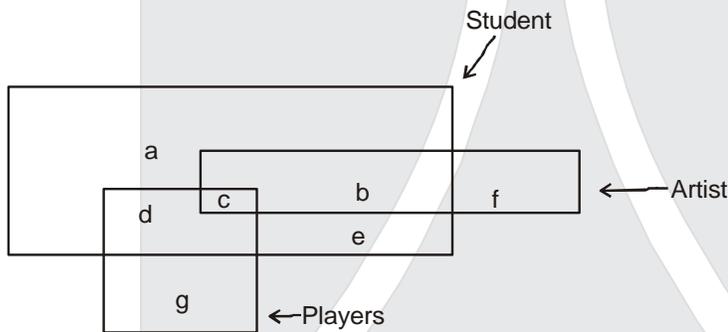


- (1) a (2) b (3) c (4) d

Sol.

Ans. (4)

Directions (13-14): Persons a, b, c, d, e, f, g are shown in Venn diagram according to their work. Study the Venn diagram and answer the following questions:



13. What number of persons are there who are student but neither artist nor player?
(1) 0 (2) 1 (3) 2 (4) 3

Sol.

Ans. (3) a and e are neither artist nor player.

14. The person who is a student, an artist and a player also, is
(1) a (2) b (3) c (4) d

Sol. C is a student, artist and player.

Ans. (3)

15. Next term of the series $2, \sqrt{5}, \sqrt{2 \times 3}, \sqrt{7}, 2\sqrt{2}, \dots$ is
(1) 10 (2) 3 (3) $\sqrt{11}$ (4) $\sqrt{13}$

Sol. $2, \sqrt{5}, \sqrt{2 \times 3}, \sqrt{7}, 2\sqrt{2}, \dots, \sqrt{9}$
alternative series

$2, \sqrt{2 \times 3}, \sqrt{2 \times 4}$

$\sqrt{5}, \sqrt{7}, \sqrt{9}$

Ans. (2)

16. In a certain code 'DATE' is written as '23-26-7-22' and 'SUN' is written as '8-6-13'. Then how will you code 'ZEAL' ?

- (1) 1-22-26-15 (2) 26-5-1-12 (3) 26-5-1-13 (4) 15-26-22-1

Sol. sum = 27

Ans. (1)

17. Which alternative shows the perfect relation between 2^6 4^3 ?

- (1) > (2) = (3) < (4) ≈

Sol.

Ans. (2)

18. The first term in the question pair is related to the second term based on their classification. Find the correct alternative from the following:

DOG: BITCH: : _____ : _____

- (1) Woman: Lady (2) Lion: Lioness
(3) Buffalo: Cow (4) Man: Boy.

Sol.

Ans. (2)

19. Except one alternative all other alternative are alike in a certain way. The odd alternative is

- (1) 63 (2) 217 (3) 7 (4) 124

Sol.

Ans. (2)

20. What is the next term in the series 1,2,3,5,8,13,.....?

- (1) 19 (2) 20 (3) 21 (4) 22

Sol. sum of 2 terms

Ans. (3)

Directions (21-24): Find the missing number/term in the following series:

21. 1,16, 81,256, ?

(1) 389

(2) 625

(3) 483

(4) 527

Sol. $4, 2^4, 3^4, 4^4, 5^4$

Ans. (2)

22. $64 : ? :: 144 : 13$

(1) 8

(2) 9

(3) 16

(4) 7

Sol. $8^2 : 9 :: 12^2 : 13$

Ans. (2)

23. $MQ : ? :: CG : KO$

(1) UZ

(2) UX

(3) UY

(4) UW

Sol. $MQ : ? :: CG : KO$

Ans. (3)

24. $FED : IHG :: TSR : ?$

(1) UWV

(2) UVW

(3) UTS

(4) WVU

Sol.

Ans. (4)

25. Choose the odd one out from the given alternatives:

(1) Green

(2) Yellow

(3) Violet

(4) Brown

Sol. VIBGYOR

Ans. (4)

26. If $(x-2)$ is a factor of the equation $x^3 - 6x^2 + px + q = 12$ then sign in place of p and q is

(1) +, +

(2) +, -

(3) -, +

(4) -, -

Sol.

Ans. (1)

Direction (27-30) : In questions 27 to 30 there are two groups of figures, one group contains problem-figures while the other has answer-figures. Problem-figures are arranged one after other in an order. You have to select an answer-figure which can be added in sequence in the problem figures. Choose the correct answer-figure.

27. समस्या-चित्र / Problem-figures

उत्तर-चित्र / Answer-figures

28. समस्या-चित्र / Problem-figures

उत्तर-चित्र / Answer-figures

29. समस्या-चित्र / Problem-figures

उत्तर-चित्र / Answer-figures

30. समस्या-चित्र / Problem-figures

उत्तर-चित्र / Answer-figures

- Sol. (27) 2
Sol. (28) 1
Sol. (29) 4
Sol. (30) 4

31. Which number is the smallest from $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}$?

- (1) $\frac{1}{2}$ (2) $\frac{1}{4}$ (3) $\frac{1}{8}$ (4) $\frac{1}{16}$

Sol. If numerator is same, then fraction value will be less whose denominator is greater.

so, $\frac{1}{16}$ is the smallest number.

Ans. (4)

32. Study the following number arrangement carefully and answer the question given below:

6,9,6,9,9,6,9,7,6,9,7,9,6,9,9,7,7,9,6,6,7

How many 6's are sandwiched between 9's?

- (1) 2 (2) 3 (3) 4 (4) 5

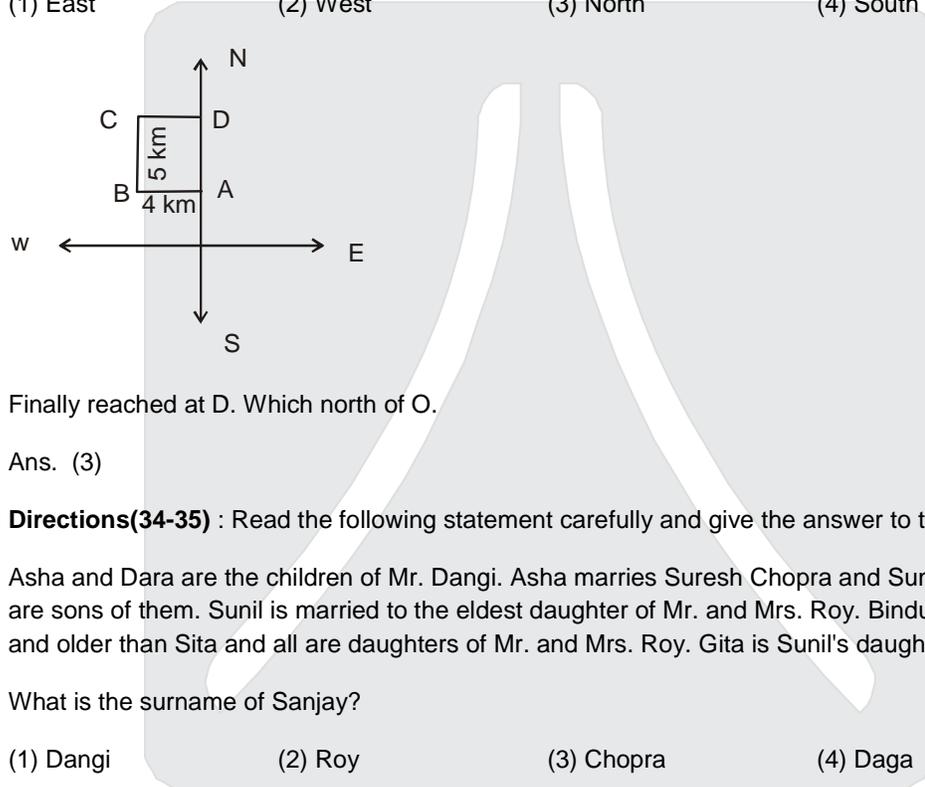
Sol. We are to find 969 set

3 set

Ans. (2)

33. Rana travels 10 km to the north, then turns left and travels 4 km and then again turns right and covers another 5 km and then again turns right and travels another 4 km. In which direction would he be now?

- (1) East (2) West (3) North (4) South



Sol.

Finally reached at D. Which north of O.

Ans. (3)

Directions(34-35) : Read the following statement carefully and give the answer to the questions:

Asha and Dara are the children of Mr. Dangi. Asha marries Suresh Chopra and Sunil, Sanjay and Sonu are sons of them. Sunil is married to the eldest daughter of Mr. and Mrs. Roy. Bindu is younger to Rita and older than Sita and all are daughters of Mr. and Mrs. Roy. Gita is Sunil's daughter.

34. What is the surname of Sanjay?

- (1) Dangi (2) Roy (3) Chopra (4) Daga

Sol. Sinch Asha marries to Suresh Chopra and their son are Sonu, Sanjay and Sunil

Hence title will be Chopra

Ans. (3)

35. Sunil is married with

- (1) Bindu (2) Geeta (3) Rita (4) Sita

Sol. Mr. and Mrs. Roy has 3 daughter such that

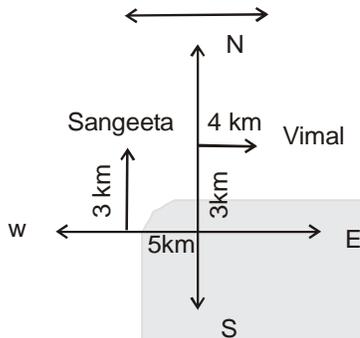
Rita---Bindu----Sita

elderest daughter is Ritu who marries Sunil

Ans. (3)

36. Vimal and Sangeeta starts from a fixed point. Vimal moves 3 kms north and turns right then he covers 4 kms. Sangeeta moves 5 kms west, turns right and walks 3 kms. The distance between Vimal and Sangeeta is

(1) 6 kms (2) 9 kms (3) 1 km (4) $(5 + \sqrt{34})$ kms



Sol.

distance = $4 + 5 = 9$ km

Ans. (2)

37. Signs '÷' and '+', numbers 2 and 4 have been interchanged. Then the value of '2+4x3 ÷ 2-1' will be

(1) 10 (2) 9 (3) 8 (4) 7

Sol.

$2+4 \times 3 \div 2-1$

after making changes, it will be-

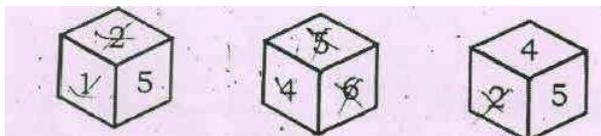
$4 \div 2 \times 3 + 4 - 1$

$2 \times 3 + 4 - 1$

$6 + 4 - 1$

Ans. (2)

38. There are three dice in the given figure. Numbers from 1 to 6 are marked on different faces of the die. What will be the number on opposite face to 4 by observing the dice ?

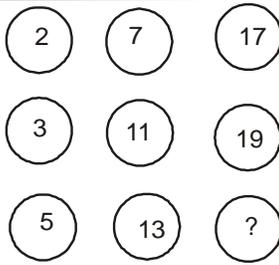


(1) 1 (2) 2 (3) 5 (4) 6

Sol. In (i) ,(ii) & (iii) it depicts such case is not possible. From (i) and (iii) 1 = opposite to 4

Ans. (Bonus/1)

39. Which number will come in the place of question mark (?) ?

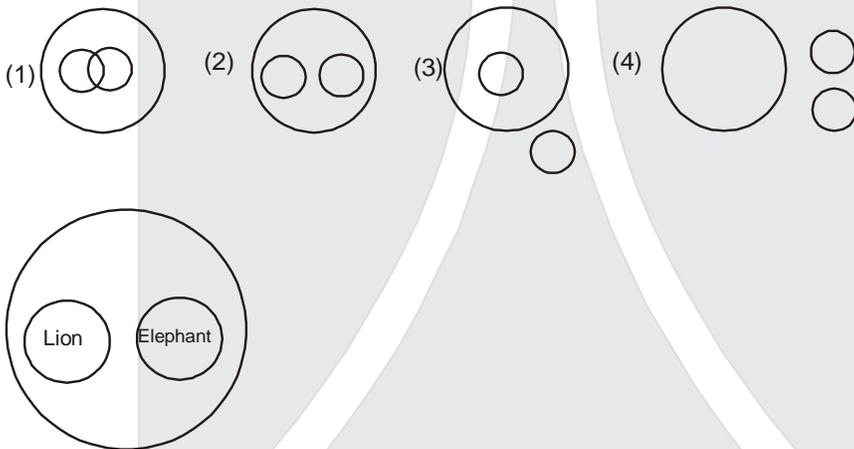


- (1) 29 (2) 18 (3) 23 (4) 36

Sol. As we see these numbers are continue our prime numbers so after 19, 23 occur.

Ans. (3)

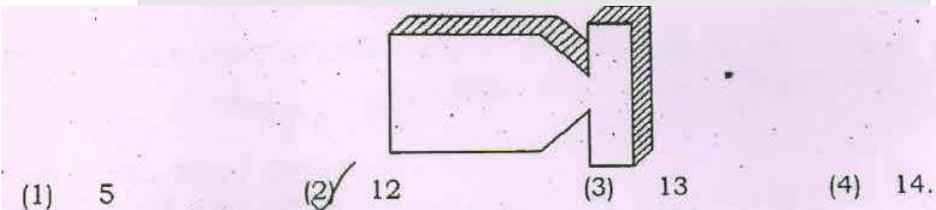
40. Which of the, following represents the relationship between animals, elephant and lion ?



Sol.

Ans. (2)

41. How many faces does the figure shown have ?



Sol.

Ans. (2)

Direction (42-44): Study the following figure carefully and answer the questions that follow:

42. What is the maximum number of squares ?

- (1) 10 (2) 12 (3) 14 (4) 16

Sol. ABCD, DCGS, GHRS, HIJR, QRJK, SRQF, DSFE, FQOP, QKLO, OLMN, CHQE, GIKF, PSJL, SHJQ

Ans. (3)

43. What is the maximum number of rectangles (excluding squares) ?

- (1) 10 (2) 12 (3) 20 (4) 22

Sol. ABGS, ABHR, ABIJ, DCHR, DCIJ,SGIJ, EDRQ, EDJK, FSJK, PFKL, CGEF, GHQF, GHOP, SROP, HIKQ, HILO, HIMN, RJLO, RJMN, QKMN, CIKE, GILP

Ans. (4)

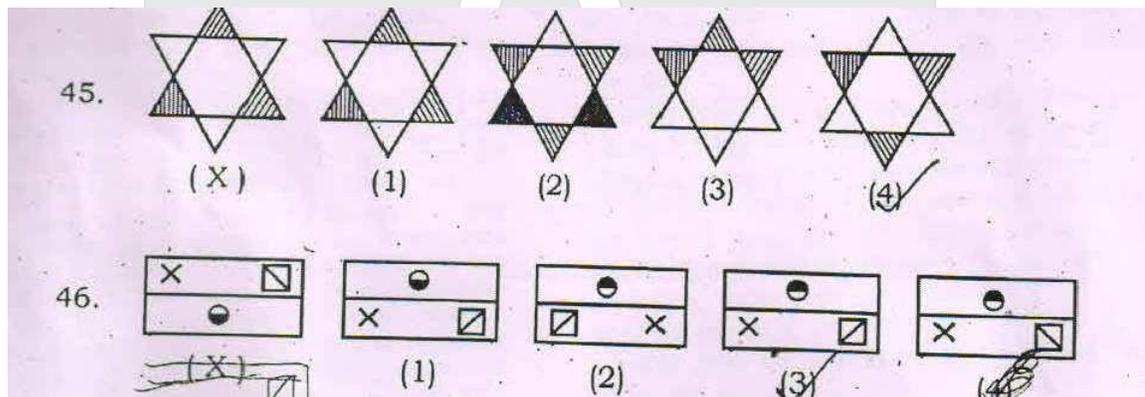
44. What is the maximum number of triangles?

- (1) 20 (2) 26 (3) 28 (4) 32

Sol. More than 32 possible

Ans. (Bonus)

Direction (45-46): Select the correct water image of the figure (X) from amongst the four alternative (1), (2), (3), (4) provided with each figure:



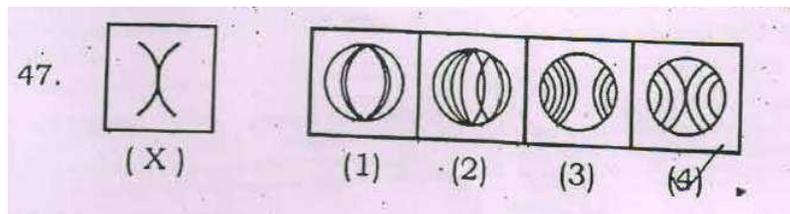
Sol. (45)

4

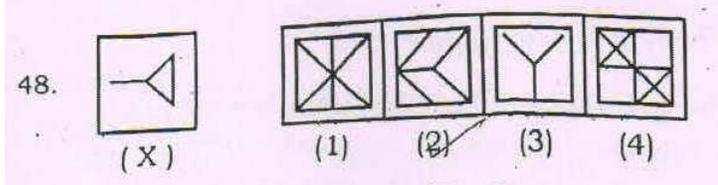
Sol.(46)

3

Direction (47-48): You are given a figure (X) followed by four figures (1), (2), (3), (4), such that (X) is embedded in one of them. Choose the correct alternative :

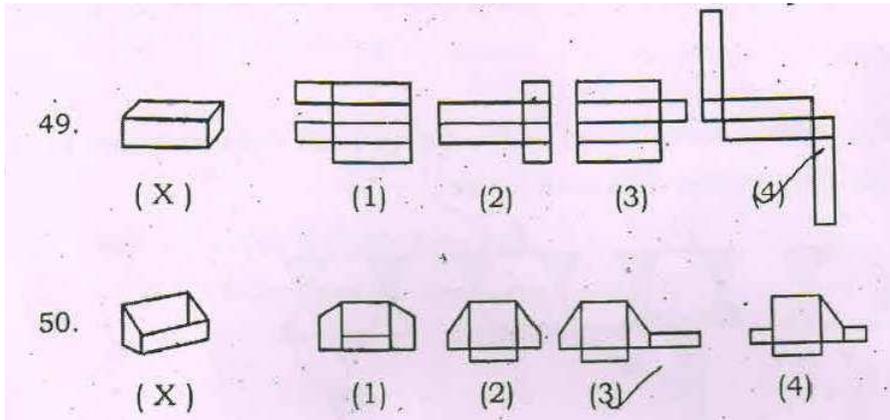


Sol. Only (4) is possible



Sol. Most appropriate (2)

Direction (49-50): Which of the following figures (1),(2), (3) and (4) when folded along the lines will produce the given figure (X) ? Write the correct alternative.



Sol. (49) 4

Sol (50) 3