

1. Newspaper : Press :: Cloth : ?

- a)Tailor      b)Textile      c)Fiber d)Mill

2. Moon : Satallite : : Earth : ?

- a)sun      b)planet      c)solar system d)asteroid

3.Candle : Wax : : Paper : ?

- a)Wood      b)Tree      c)Bamboo      d)Pulp

4. Doctor is related to patient in the same way as Lawyer is related to .....?

- a)Customer      b)Accused      c)Magistrate      d)Client

5. Which number would replace question mark in the series 7,12,19, ?, 39.

- a)29      b)28      c)26      d)24

6. Lotus temple in Delhi was built by

- (a) Muslims    (b) Jews      (c) Jains      (d) Bahais

7.If in a certain language,GAMBLE is coded as FBLCKF,how is FLOWER coded in that code?

- a)GKPVFQ      b)EMNXDS      c)GMPVDS      d)HNQYGT

8.If GO=32,SHE=49,the SOME will be equal to

- a)56      b)58      c)62      d)64

9.Pointing out to a photograph, a man tells his friend, “She is the daughter of the only son of my father’s wife.” How is the girl in the photograph related to the man?

- a)Daughter      b)Cousin      c)Mother      d)Sister

10.Showing the man receiving the prize,Saroj said,“He is the brother of my uncle’s daughter.” Who is the man to saroj?

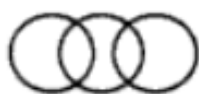
- a)Son      b)Brother-in-law      c)Nephew      d)Cousin

11.

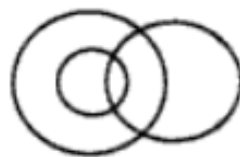
Which of the following diagrams correctly represents *Elephants, Wolves, Animals* ?



(a)



(b)



(c)



(d)

12.

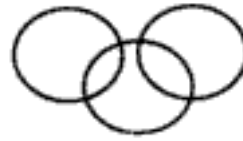
Doctor, Nurse, Human being



(a)



(b)



(c)



(d)

13.

In a chess tournament each of six players will play every other player exactly once. How many matches will be played during the tournament ?

(a) 12

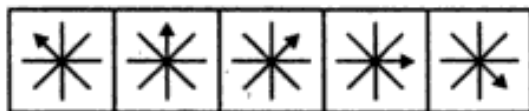
(b) 15

(c) 30

(d) 36

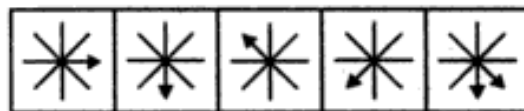
14.

Example 2 : PROBLEM FIGURES



A B C D E

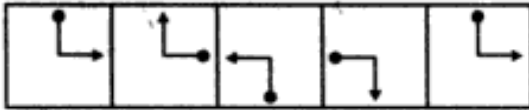
ANSWER FIGURES



1 2 3 4 5

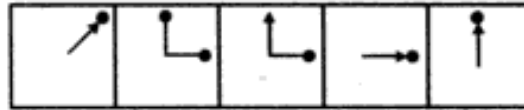
15.

Example 3 : PROBLEM FIGURES



A B C D E

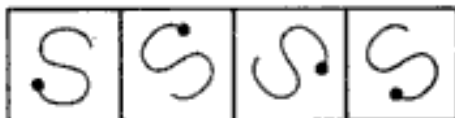
ANSWER FIGURES



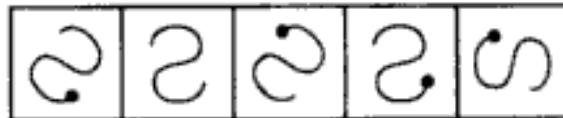
1 2 3 4 5

16.

Problem Figures

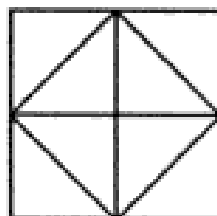


Answer Figures



1 2 3 4 5

17. Count the number of triangles in the following figure.



(a) 8

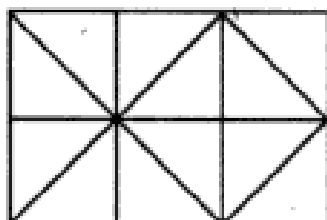
(b) 10

(c) 12

(d) 14

18.

How many squares does the figure have?



(a) 6

(b) 7

(c) 9

(d) 10

In each of the following questions, choose the correct mirror images of the given image of the Fig.(X) from amongst the four alternatives (1), (2), (3) and (4) given along with it.

19.

**STROKE**

- (a) 2TROKX
- (c) ROKETS

- (b) EKORTS
- (d) 2TROKE

20.

**LATERAL**

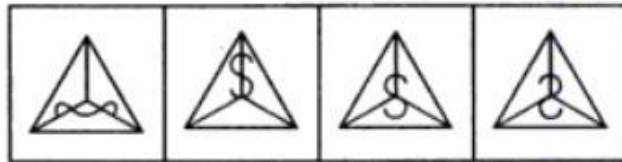
- (a) ГАБЕЛАГ
- (c) LARETAL

- (b) LARETAL
- (d) JARETAL

21.



(x)



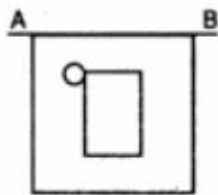
(a)

(b)

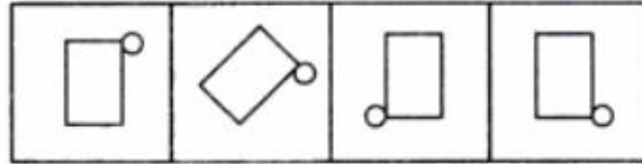
(c)

(d)

22.



(x)



(a)

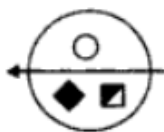
(b)

(c)

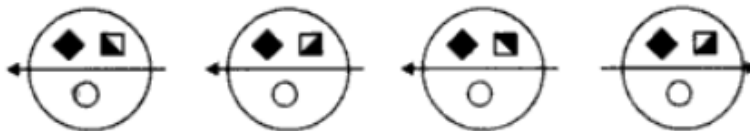
(d)

In each of the following questions, choose the water image of the Fig.(X) from amongst the four alternatives (1), (2), (3) and (4) given along with it.

23.



(x)



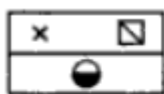
(a)

(b)

(c)

(d)

24.



(x)



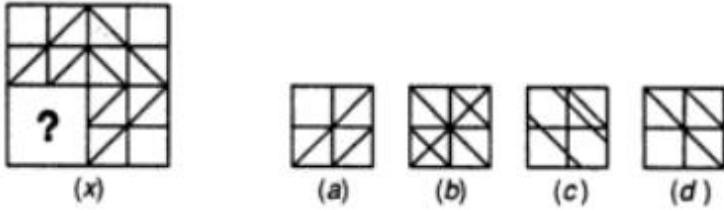
(a)

(b)

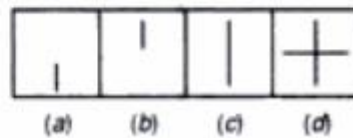
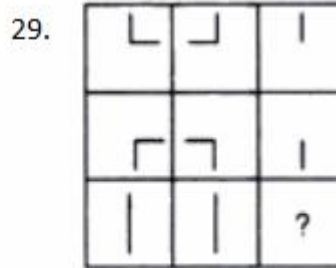
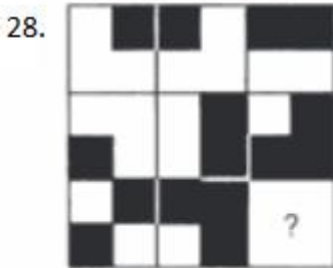
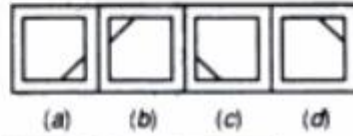
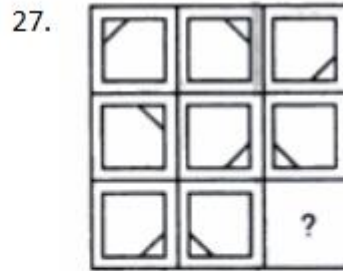
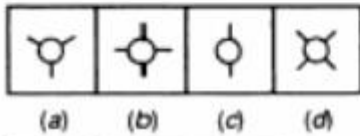
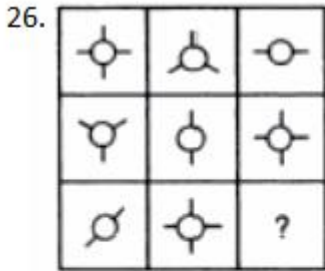
(c)

(d)

25. Complete the pattern in fig (x) by selecting one of the figures from the four alternatives :



Directions : In each of the following questions, find out which of the answer figures (a), (b), (c) and (d) completes the figure - matrix ?



In each of the following problems, a square transparent sheet (X) with a pattern is given. Figure out from amongst the four alternatives as to how the patten would appear when the transparent sheet is folded at the dotted line.

30. Transparent Sheet



Response Figures



31. Find the number of triangles in the given figure.



- a)27      b)25      c)23      d)21

32. A train passes a station platform in 36 seconds and a man standing on the platform in 20 seconds. If the speed of the train is 54 km/hr, what is the length of the platform?

- A. 120 m
- B. 240 m
- C. 300 m
- D. None of these

33. A can do a certain work in the same time in which B and C together can do it. If A and B together could do it in 10 days and C alone in 50 days, then B alone could do it in:

- A. 15 days
- B. 20 days
- C. 25 days
- D. 30 days

34. A and B can together finish a work 30 days. They worked together for 20 days and then B left. After another 20 days, A finished the remaining work. In how many days A alone can finish the work?

- a)40                      b)50                      c)54                      d)60

35. Ravi and Kumar are working on an assignment. Ravi takes 6 hours to type 32 pages on a computer, while Kumar takes 5 hours to type 40 pages. How much time will they take, working together on two different computers to type an assignment of 110 pages?

- A. 7 hours 30 minutes
- B. 8 hours
- C. 8 hours 15 minutes
- D. 8 hours 25 minutes

36. The angle of elevation of a ladder leaning against a wall is  $60^\circ$  and the foot of the ladder is 4.6 m away from the wall. The length of the ladder is:

- A. 2.3 m
- B. 4.6 m
- C. 7.8 m
- D. 9.2 m

37. What will be the day of the week 15<sup>th</sup> August, 2010?

- A)Sunday      B)Monday      C)Tuesday      D)Friday

38. On 8<sup>th</sup> Dec, 2007 Saturday falls. What day of the week was it on 8<sup>th</sup> Dec, 2006?

- A)Sunday      B)Monday      C)Tuesday      D)Friday

39. Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5?

- a)1/2                      b)2/5                      c)8/15                      d)9/20

40. In a lottery, there are 10 prizes and 25 blanks. A lottery is drawn at random. What is the probability of getting a prize?

- a)  $1/10$       b)  $2/5$       c)  $2/7$       d)  $5/7$

41.

If  $y = (1 + x)(1 + x^2)(1 + x^4)$ , then  $\frac{dy}{dx}$  at  $x = 1$  is

- (1) 20                      (2) 28                      (3) 1                      (4) 0

42.

If  $f(x) = x^3$  and  $g(x) = x^3 - 4x$  in  $-2 \leq x \leq 2$ , then consider the statements:

- (a)  $f(x)$  and  $g(x)$  satisfy mean value theorem  
 (b)  $f(x)$  and  $g(x)$  both satisfy Rolle's theorem  
 (c) Only  $g(x)$  satisfies Rolle's theorem.

Of these statements

- (1) (a) and (b) are correct                      (2) (a) alone is correct  
 (3) None is correct                      (4) (a) and (c) are correct

43.

If the function  $f(x)$  satisfies  $\lim_{x \rightarrow 1} \frac{f(x) - 2}{x^2 - 1} = \pi$ , then  $\lim_{x \rightarrow 1} f(x) =$

- (1) 1                      (2) 2                      (3) 0                      (4) 3

44.

If the function  $f(x)$  defined by  $f(x) = \frac{x^{100}}{100} + \frac{x^{99}}{99} + \dots + \frac{x^2}{2} + x + 1$ , then  $f'(0) =$

- (1)  $100 f'(0)$                       (2) 100                      (3) 1                      (4) -1

45.

Let  $S$  be the set of all real numbers. A relation  $R$  has been defined on  $S$  by  $aRb \Leftrightarrow |a - b| \leq 1$ , then  $R$  is

- (1) symmetric and transitive but not reflexive  
 (2) reflexive and transitive but not symmetric  
 (3) reflexive and symmetric but not transitive  
 (4) an equivalence relation

46.

For any two real numbers, an operation  $*$  defined by  $a * b = 1 + ab$  is

- (1) neither commutative nor associative  
 (2) commutative but not associative  
 (3) both commutative and associative  
 (4) associative but not commutative

47.

Let  $f: \mathbb{N} \rightarrow \mathbb{N}$  defined by  $f(n) = \begin{cases} \frac{n+1}{2} & \text{if } n \text{ is odd} \\ \frac{n}{2} & \text{if } n \text{ is even} \end{cases}$  then  $f$  is

- (1) onto but not one-one                      (2) one-one and onto  
 (3) neither one-one nor onto                      (3) one-one but not onto

48.

In a class of 60 students, 25 students play cricket and 20 students play tennis and 10 students play both the games, then the number of students who play neither is

- (1) 45                      (2) 0                      (3) 25                      (4) 35

49.

If A is  $3 \times 4$  matrix and B is a matrix such that  $A'B$  and  $BA'$  are both defined, then B is of the type

- (1)  $4 \times 4$                       (2)  $3 \times 4$                       (3)  $4 \times 3$                       (4)  $3 \times 3$

50.

Consider the following statements:

- (a) If any two rows or columns of a determinant are identical, then the value of the determinant is zero  
 (b) If the corresponding rows and columns of a determinant are interchanged, then the value of determinant does not change.  
 (c) If any two rows (or columns) of a determinant are interchanged, then the value of the determinant changes in sign.

Which of these are correct?

- (1) (a) and (c)                      (2) (a) and (b)                      (3) (a), (b) and (c)                      (4) (b) and (c)

51.

The symmetric part of the matrix  $A = \begin{pmatrix} 1 & 2 & 4 \\ 6 & 8 & 2 \\ 2 & -2 & 7 \end{pmatrix}$  is

- (1)  $\begin{pmatrix} 0 & -2 & -1 \\ -2 & 0 & -2 \\ -1 & -2 & 0 \end{pmatrix}$                       (2)  $\begin{pmatrix} 1 & 4 & 3 \\ 2 & 8 & 0 \\ 3 & 0 & 7 \end{pmatrix}$                       (3)  $\begin{pmatrix} 0 & -2 & 1 \\ 2 & 0 & 2 \\ -1 & 2 & 0 \end{pmatrix}$                       (4)  $\begin{pmatrix} 1 & 4 & 3 \\ 4 & 8 & 0 \\ 3 & 0 & 7 \end{pmatrix}$

52.

If a, b and c are in A.P., then the value of  $\begin{vmatrix} x+2 & x+3 & x+a \\ x+4 & x+5 & x+b \\ x+6 & x+7 & x+c \end{vmatrix}$  is

- (1) 0                      (2)  $x - (a + b + c)$                       (3)  $a + b + c$                       (4)  $9x^2 + a + b + c$

53.

A stone is dropped into a quiet lake and waves move in circles at the speed of 5 cm/sec. At that instant, when the radius of circular wave is 8 cm, how fast is the enclosed area increasing?

- (1)  $6\pi\text{cm}^2/\text{s}$                       (2)  $8\pi\text{cm}^2/\text{s}$                       (3)  $\frac{8}{3}\text{cm}^2/\text{s}$                       (4)  $80\pi\text{cm}^2/\text{s}$

54.

Area of the region bounded by two parabolas  $y = x^2$  and  $x = y^2$  is

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

55.

The order and degree of the differential equation  $y = x \frac{dy}{dx} + \frac{2}{\frac{dy}{dx}}$  is

- (1) 1, 2                      (2) 1, 3                      (3) 2, 1                      (4) 1, 1

56.

The line  $\frac{x-2}{3} = \frac{y-3}{4} = \frac{z-4}{5}$  is parallel to the plane

- (1)  $2x + 3y + 4z = 0$                       (2)  $3x + 4y + 5z = 7$   
 (3)  $2x + y - 2z = 0$                       (4)  $x + y + z = 2$

57.

A and B are two events such that  $P(A) \neq 0$ ,  $P(B/A)$  if

(i) A is a subset of B

(ii)  $A \cap B = \Phi$  are respectively

- (1) 1, 1                      (2) 0 and 1                      (3) 0, 0                      (4) 1, 0

58.

If the events A and B are independent if  $P(A^c) = \frac{2}{3}$  and  $P(B^c) = \frac{2}{7}$ , then  $P(A \cap B)$  is equal to

- (1)  $\frac{4}{21}$                       (2)  $\frac{5}{21}$                       (3)  $\frac{1}{21}$                       (4)  $\frac{3}{21}$

59.

A box contains 100 bulbs, out of which 10 are defective. A sample of 5 bulbs is drawn. The probability that none is defective is

- (1)  $\frac{9}{10}$                       (2)  $\left(\frac{1}{10}\right)^5$                       (3)  $\left(\frac{9}{10}\right)^5$                       (4)  $\left(\frac{1}{2}\right)^5$

60.

If 21<sup>st</sup> and 22<sup>nd</sup> terms in the expansion of  $(1+x)^{44}$  are equal, then x is equal to

- (1)  $\frac{8}{7}$                       (2)  $\frac{21}{22}$                       (3)  $\frac{7}{8}$                       (4)  $\frac{23}{24}$

## DRAWING

1. DRAW THE BIRD EYE VIEW OF A CITY
2. DESIGN A COMPOSITION WITH 3 CIRCLES AND 3 TRIANGLES, USING SUITABLE COLORS.



**Answer Key**

1. D
2. B
3. D
4. D
5. B
6. D
7. B
8. A
9. A
10. D
11. A
12. A
13. B
14. B
15. C
16. E
17. C
18. C
19. D
20. B
21. D
22. C
23. A
24. C
25. D
26. A
27. B
28. D
29. C
30. D
31. A
32. B
33. C
34. D
35. C
36. D
37. A
38. D
39. D
40. C
41. B
42. D
43. B
44. C

- 45. C
- 46. B
- 47. A
- 48. C
- 49. C
- 50. C
- 51. D
- 52. A
- 53. D
- 54. B
- 55. A
- 56. C
- 57. D
- 58. B
- 59. C
- 60. C