

1.

In a particular code language, the following words are associated with other words as follows:

wiggesslorm means flatpen

widdlebrap means roundnib

slormwiggel means penink

Given this information, which word would mean 'nibstore'?

- a) brapdansa
- b) wiggelslorm
- c) slormbrap
- d) brapwiggel

2.

Which process is used to manufacture polythene bags?

- a) Injection Moulding
- b) Blown-film Extrusion
- c) Vacuum Forming
- d) Compression Moulding

3.

In which region is the Hemis festival celebrated?

- a) Meghalaya
- b) Ladakh
- c) Gangtok
- d) Kutch

4. Identify the given image



- (a) One Avighna Park, Mumbai
- (c) Ahuja Towers, Mumbai

- (b) The 42 (Kolkata)
- (d) World One, Mumbai

5. Identify the given image



- (a) Government Museum, Chennai
- (c) Alamparai Fort

- (b) Valluvar Kottam
- (d) Connemara Public Library

6. Identify the given image.



- (a) One Avighna Park, Mumbai
- (c) Ahuja Towers, Mumbai

- (b) Imperial Tower 1, Mumbai
- (d) World One, Mumbai

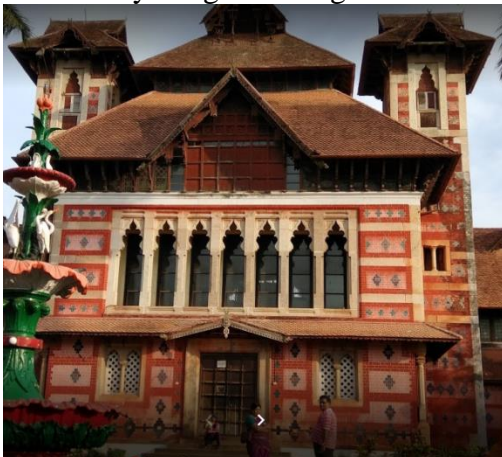
7. The total of the ages of Amar, Akbar and Anthony is 80 years. What was the total of their ages three years ago ?

- a) 71    b) 72    c) 74    d) 77

8. Pointing to a photograph of a boy Suresh said, "He is the son of the only son of my mother." How is Suresh related to that boy?

- a) Brother    b) Uncle    c) Cousin    d) Father

9. Identify the given image



(a) Vizhinjam Rock- Cut Cave.

(b) Kuthiramalika (Puthenmalika)

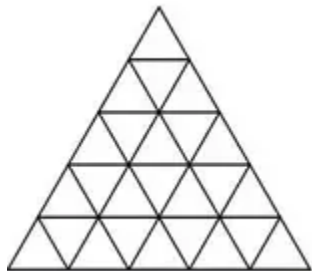
(c) Koyikkal Palace. ...

(d) Napier Museum

10. If A is the brother of B; B is the sister of C; and C is the father of D, how D is related to A?

- A. Brother
- B. Sister
- C. Nephew
- D. Cannot be determined

11. "Number of triangles" in a given triangle problem?



(a) 78

(b) 48

(c) 27

(d) 13

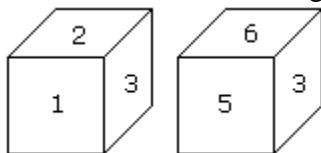
12. 120, 99, 80, 63, 48, ?

- A. 35
- B. 38
- C. 39
- D. 40

13. 125,80,45,20,?

- A. 5
- B. 8
- C. 10
- D. 12

14. Which digit will appear on the face opposite to the face with number 4?



- A. 3
- B. 5
- C. 6

D. 2/3

15. Which type of roof will provide maximum protection from heat radiation in a building ?

- A. Concrete slab, water proofed and covered with a roof garden
- B. Painted aluminium sheeting
- C. Concrete slab with plaster
- D. Concrete slab with mud and brick tiles

16.

In the given number series: 12, 24, 21, 42, 39, 78 ...

Which number would come next?

- A.74      B.75      C.76      D.77

17.

Among the following, select the shades of the colour red.

- a) Crimson
- b) Azure
- c) Carmine
- d) Viridian

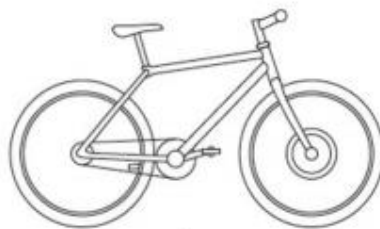
18.

Which are the following vehicle(s) have a rear engine.

- a) Tata Nano
- b) Maruti Ertiga
- c) Skoda Octavia
- d) Tata Indica

19.

Which of the following is a correct bicycle frame?



A



B



C



D

20.  
In which context is the term "Pica" system used?

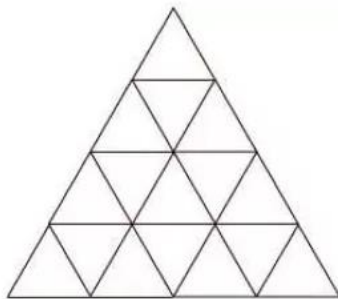
- a) Plastic Moulding
- b) Image editing
- c) Typography
- d) Sculpture

21.  
Identify the dance form.



- a) Manipuri
- b) Odissi
- c) Kuchipudi
- d) Kathakali

22. "Number of triangles" in a given triangle problem?



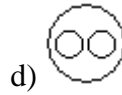
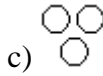
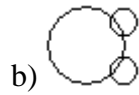
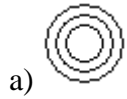
- (a) 78
- (c) 27

- (b) 48
- (d) 13

23. Which of the following diagrams indicates the best relation between Travelers, Train and Bus ?



24. Which of the following diagrams indicates the best relation between Factory, Product and Machinery ?



25. Arrange the words given below in a meaningful sequence.

1. Key 2. Door 3. Lock

4. Room 5. Switch on

A. 5, 1, 2, 4, 3

B. 4, 2, 1, 5, 3

C. 1, 3, 2, 4, 5

D. 1, 2, 3, 5, 4

26. Flow : River :: Stagnant : ?

A. Rain

B. Stream

C. Pool

D. Canal

27. CUP : LIP :: BIRD : ?

A. BUSH

B. GRASS

C. FOREST

D. BEAK

28. Choose the word which is different from the rest.

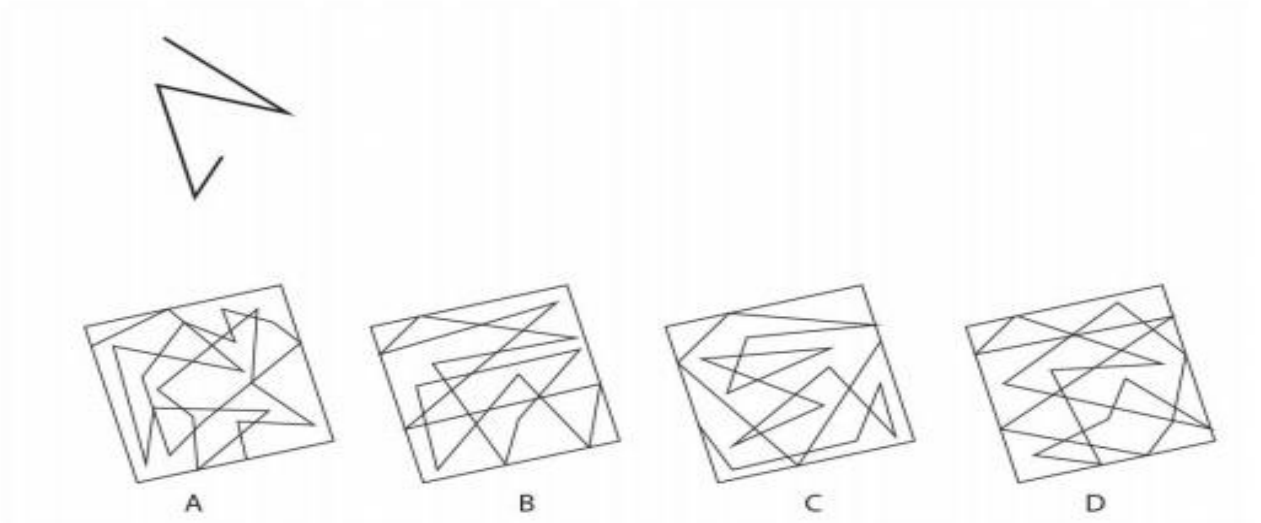
A. Kiwi

B. Eagle

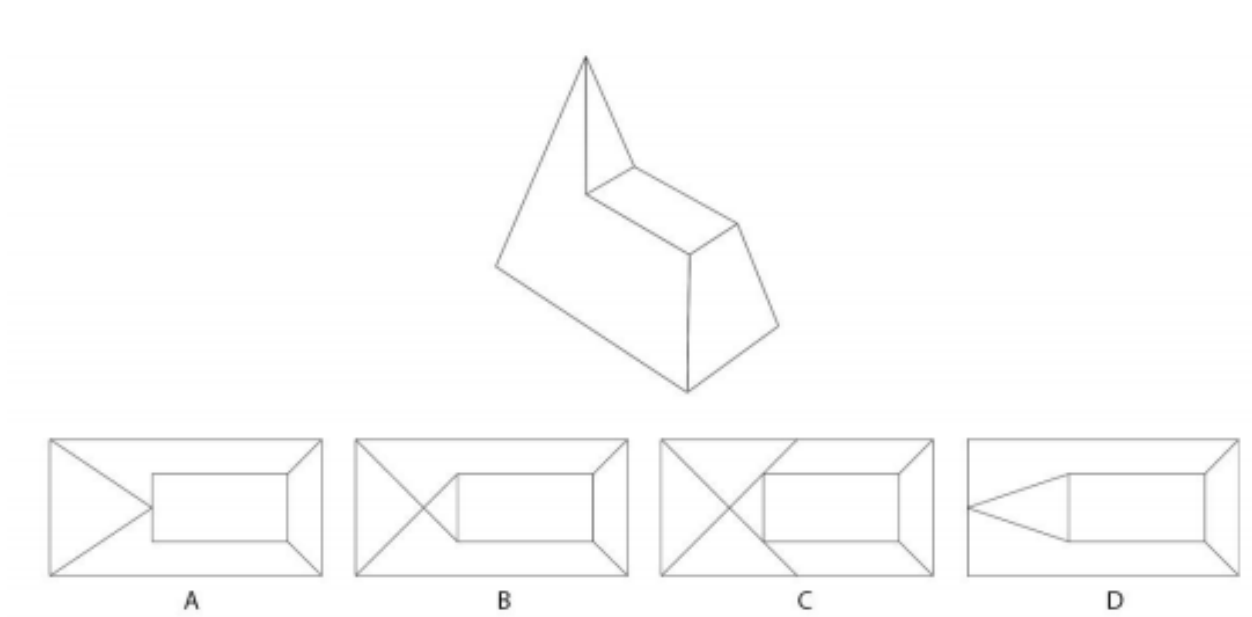
C. Emu

D. Ostrich

29. Which square contains the visual element shown below?

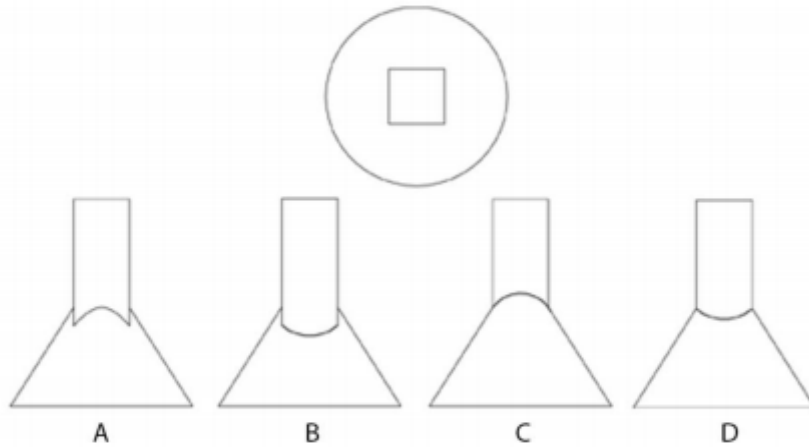


30. For the given solid, identify the correct top view.



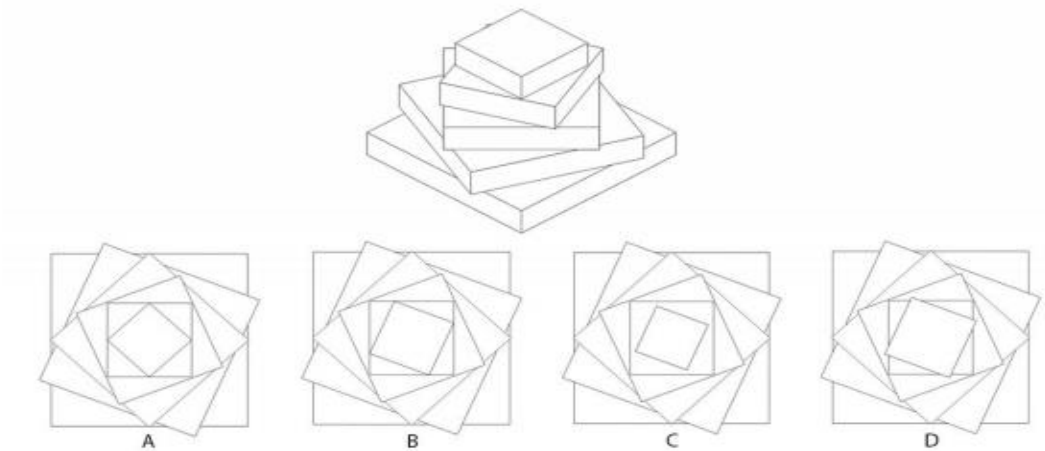
31.

From the given top view, choose the correct front view.



32.

Five blocks are placed one above another in a particular sequence (as shown in figure). If a sixth block is added to the same sequence, which would be the correct top view?



33.

Identify the odd one out

- a) Verdana
- b) Tahoma
- c) Cambria
- d) Calibri

34. A takes twice as much time as B or thrice as much time as C to finish a piece of work. Working together, they can finish the work in 2 days. B can do the work alone in:

- A. 4 days
- B. 6 days
- C. 8 days
- D. 12 days



35. Twenty women can do a work in sixteen days. Sixteen men can complete the same work in fifteen days. What is the ratio between the capacity of a man and a woman?

- A. 3 : 4
- B. 4 : 3
- C. 5 : 3
- D. Data inadequate

36. If 6<sup>th</sup> March, 2005 is Monday, what was the day of the week on 6<sup>th</sup> March, 2004?

- A. Sunday
- B. Saturday
- C. Tuesday
- D. Wednesday

37. On what dates of April, 2001 did Wednesday fall?

- A. 1<sup>st</sup>, 8<sup>th</sup>, 15<sup>th</sup>, 22<sup>nd</sup>, 29<sup>th</sup>
- B. 2<sup>nd</sup>, 9<sup>th</sup>, 16<sup>th</sup>, 23<sup>rd</sup>, 30<sup>th</sup>
- C. 3<sup>rd</sup>, 10<sup>th</sup>, 17<sup>th</sup>, 24<sup>th</sup>
- D. 4<sup>th</sup>, 11<sup>th</sup>, 18<sup>th</sup>, 25<sup>th</sup>

38. A man buys a cycle for Rs. 1400 and sells it at a loss of 15%. What is the selling price of the cycle?

- A. Rs. 1090
- B. Rs. 1160
- C. Rs. 1190
- D. Rs. 1202

39. Who designed the Chandigarh city?

- (a) Le Corbusier
- (b) Richard
- (c) Albert Meyer
- (d) Sir William George

40. Banaras Hindu University was founded by

- (a) Madan Mohan Malviya
- (b) Gopal Krishna Gokhale
- (c) Motilal Nehru
- (d) Jawahar Lal Nehru

41.

The system of linear equations

$$x - y + z = 1$$

$$x + y - z = 3$$

$$x - 4y + 4z = \alpha \text{ has :}$$

(1) a unique solution when  $\alpha = 2$ (2) a unique solution when  $\alpha \neq 2$ (3) an infinite number of solutions, when  $\alpha = 2$ (4) an infinite number of solutions, when  $\alpha = -2$ 

42.

Let  $A = \begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$  and  $B = \begin{bmatrix} b_1 & b_2 \\ b_3 & b_4 \end{bmatrix}$ . If  $10A^{10} + \text{adj}(A^{10}) = B$ , then  $b_1 + b_2 + b_3 + b_4$  is equal to

(1) 91

(2) 92

(3) 111

(4) 112

43.

If  $f(x) = \begin{vmatrix} \sin x & \cos x & \tan x \\ x^3 & x^2 & x \\ 2x & 1 & 1 \end{vmatrix}$ , then  $\lim_{x \rightarrow 0} \frac{f(x)}{x^2}$  is :

(1) 1

(2) -1

(3) 0

(4) 2

44.

The set of all non-zero real values of  $k$ , for which the lines  $\frac{x-4}{2} = \frac{y-6}{2} = \frac{z-8}{-2k^2}$  and

$\frac{x-2}{2k^2} = \frac{y-8}{4} = \frac{z-10}{2}$  are coplanar :

(1) is an empty set

(2) is a singleton

(3) contains two points

(4) contains more than two points

45. If A and B be two finite sets such that in total number of subsets of A is 960 more than the total number of subsets of B, then  $n(A) - n(B)$  (where  $n(X)$  denotes the number of elements in set X) is equal to :
- (1) 6      (2) 2      (3) 3      (4) 4
46. The order and the degree of the differential equation of all ellipses with centre at the origin, major axis along x-axis and eccentricity  $\frac{\sqrt{3}}{2}$  are, respectively :
- (1) 2, 2      (2) 1, 1      (3) 2, 1      (4) 1, 2
47. If A and B are two independent events such that  $P(A) = \frac{3}{10}$  and  $P(A \cup B) = \frac{4}{5}$ , then  $P(A \cap B)$  is equal to :
- (1)  $\frac{3}{35}$       (2)  $\frac{1}{5}$       (3)  $\frac{1}{10}$       (4)  $\frac{3}{14}$
48. The equation of the circle, which is the mirror image of the circle,  $x^2 + y^2 - 2x = 0$ , in the line,  $y = 3 - x$  is :-
- (1)  $x^2 + y^2 - 6x - 4y + 12 = 0$   
 (2)  $x^2 + y^2 - 6x - 8y + 24 = 0$   
 (3)  $x^2 + y^2 - 8x - 6y + 24 = 0$   
 (4)  $x^2 + y^2 - 4x - 6y + 12 = 0$
49. If the shortest distance between the lines  $x + 2\lambda = 2y = -12z$ ,  $x = y + 4\lambda = 6z - 12\lambda$  is  $4\sqrt{2}$  units, then a value of  $\lambda$  is :
- (1)  $\frac{\sqrt{2}}{2}$       (2) 2  
 (3)  $\sqrt{2}$       (4)  $2\sqrt{2}$
50. If the digits at ten's and hundred's places in  $(11)^{2016}$  are x and y respectively, then the ordered pair (x, y) is equal to :-
- (1) (1, 8)      (2) (1, 6)  
 (3) (6, 1)      (4) (8, 1)
51. If  $(x + iy)^2 = 7 + 24i$ , then a value of  $(7 + \sqrt{-576})^{\frac{1}{2}} - (7 - \sqrt{-576})^{\frac{1}{2}}$  is :-
- (1)  $-6i$       (2)  $-3i$   
 (3)  $2i$       (4) 6
52. Two numbers are selected at random (without replacement) from the first six positive integers. If X denotes the smaller of the two numbers, then the expectation of X, is :
- (1)  $\frac{5}{3}$       (2)  $\frac{14}{3}$       (3)  $\frac{13}{3}$       (4)  $\frac{7}{3}$

53. The value of  $\frac{1}{\cos 285^\circ} + \frac{1}{\sqrt{3} \sin 255^\circ}$  is  
 (1)  $\sqrt{3} - \sqrt{2}$  (2)  $2\sqrt{2}$   
 (3)  $\frac{4\sqrt{2}}{\sqrt{3}}$  (4)  $\frac{2\sqrt{2}}{3}$
54. Let  $a_1, a_2, a_3, a_4, a_5$  be a G.P. of positive real numbers such that the A.M., of  $a_2$  and  $a_4$  is 117 and the G.M. of  $a_2$  and  $a_4$  is 108. Then the A.M. of  $a_1$  and  $a_5$  is  
 (1) 145.5 (2) 108  
 (3) 117 (4) 144.5
55. The integral  $\int_{\frac{\pi}{24}}^{\frac{5\pi}{24}} \frac{dx}{1 + \sqrt[3]{\tan 2x}}$  is equal to  
 (1)  $\frac{\pi}{18}$  (2)  $\frac{\pi}{3}$  (3)  $\frac{\pi}{12}$  (4)  $\frac{\pi}{6}$
56. Three vectors  $\vec{a}, \vec{b}$  and  $\vec{c}$  are such that  $|\vec{a}| = 1, |\vec{b}| = 2, |\vec{c}| = 4$  and  $\vec{a} + \vec{b} + \vec{c} = \vec{0}$ . Then the value of  $4\vec{a} \cdot \vec{b} + 3\vec{b} \cdot \vec{c} + 3\vec{c} \cdot \vec{a}$  is equal to :  
 (1) 27 (2) -68  
 (3) -26 (4) -34
57. If the function  $f : \mathbf{R} \rightarrow \mathbf{R}$ , defined by  
 $f(x) = \begin{cases} ax, & x < 2 \\ ax^2 - bx + 3, & x \geq 2 \end{cases}$  is differentiable, then the value of  $f'(-3) + f'(3)$  is equal to :  
 (1) 0 (2) 3 (3) 4 (4)  $\frac{15}{2}$
58. Which one of the following statements is a tautology ?  
 (1)  $p \rightarrow (p \rightarrow q)$  (2)  $(p \vee q) \rightarrow q$   
 (3)  $p \vee (p \rightarrow q)$  (4)  $p \vee (q \rightarrow p)$
59. The sum of the abscissae of the points where the curves,  
 $y = kx^2 + (5k + 3)x + 6k + 5, (k \in \mathbf{R})$ , touch the x-axis, is equal to :  
 (1)  $-\frac{4}{3}$  (2)  $-\frac{19}{3}$  (3)  $-\frac{10}{3}$  (4)  $\frac{5}{3}$
60. If  $\lambda_1$  and  $\lambda_2$  are the two values of  $\lambda$  such that the roots  $\alpha$  and  $\beta$  of the quadratic equation,  
 $\lambda(x^2 - x) + x + 5 = 0$  satisfy  $\frac{\alpha}{\beta} + \frac{\beta}{\alpha} + \frac{4}{5} = 0$ , then  $\frac{\lambda_1}{\lambda_2} + \frac{\lambda_2}{\lambda_1}$  is equal to :  
 (1) 488 (2) 536  
 (3) 512 (4) 504

### Drawing

1. Draw the log of a yoga training center.
2. Draw the worm eye view inside a kitchen.

### Answer Key

1. A
2. B
3. C
4. B
5. B
6. A
7. A
8. D

9. D
10. D
11. B
12. A
13. A
14. A
15. A
16. B
17. A
18. A
19. B
20. C
21. A
22. C
23. C
24. D
25. C
26. C
27. D
28. B
29. B
30. B
31. A
32. B
33. C
34. B
35. B
36. A
37. D
38. C
39. A
40. A
41. D
42. D
43. A
44. A
45. D
46. B
47. D
48. A
49. C
50. C
51. A
52. D
53. C
54. A
55. C
56. C
57. B
58. C

59. C

60. A