



1. Acids give -  
(A)  $H^+$  in water                      (B)  $OH^-$  in water                      (C) Both (A) & (B)                      (D) None of these
2.  $H_2CO_3$  is a -  
(A) strong acid                      (B) weak acid                      (C) strong base                      (D) weak base
3. The difference in number of water molecules in gypsum and plaster of Paris is -  
(A)  $5/2$                       (B) 2                      (C)  $1/2$                       (D)  $3/2$
4. Choose the correct relation between u,v and R -  
(A)  $R = \frac{2uv}{u+v}$                       (B)  $R = \frac{2}{u+v}$                       (C)  $R = \frac{2(u+v)}{uv}$                       (D) none of these
5. Calculate the wavelength of light in glass, when light waves of frequency  $6 \times 10^{14}$  Hz. travel from air to glass of  $\mu = 1.5$ .  
(A)  $3.3 \times 10^{-7}m$ .                      (B)  $33.3 \times 10^{-7}m$ .                      (C)  $13.3 \times 10^{-7}m$ .                      (D)  $73.3 \times 10^{-7}m$ .
6. The focal length of human eye lens is -  
(A) 2.5 cm                      (C) 25 cm                      (C) 25m                      (D)  $\infty$
7. Two lamps, one rated 100 W at 220 V and other 60 W at 220 V are connected in parallel to a 220 V supply. What is current drawn from the supply line?  
(A) 3.727 A                      (B) 4.727 A                      (C) 8.727 A                      (D) 0.727 A
8. In the reaction  $FeSO_4 + x \longrightarrow Na_2SO_4 + Fe(OH)_2$ , x is -  
(A)  $Na_2SO_4$                       (B)  $H_2SO_4$                       (C) NaOH                      (D) None of these
9. Plaster of Paris hardens by -  
(A) giving off  $CO_2$ .                      (B) changing into  $CaCO_3$ .  
(C) combining with water                      (D) giving out water.
10. A redox reaction is one in which -  
i. both the substances are reduced.  
ii. both the substances are oxidised.  
iii. an acid is neutralized by the base.  
iv. one substance is oxidized, while the other is reduced.

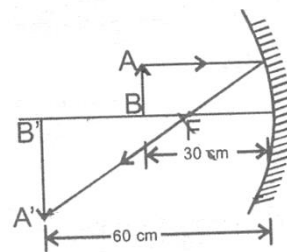
11. Wavelength of visible light is

- (A) 200 - 400 nm      (B) 400 - 700 nm      (C) 700 - 900 nm      (D) 100 - 200 nm

12. A ray of light is incident on a plane mirror at an angle  $\theta$ . If the angle between the incident and reflected rays is  $80^\circ$ , what is the value of  $\theta$  :

- (A)  $40^\circ$       (B)  $50^\circ$       (C)  $45^\circ$       (D)  $55^\circ$

13. A 2.0 cm long object is placed perpendicular to the principal axis of a concave mirror. The distance of the object from the mirror is 30 cm and its image is formed 60 cm from the mirror on the same side of the mirror as the object. Find the height of the image formed.



- (A) 3      (B) 4      (C) 8      (D) 12

14. Chewing is an example of

- (A) chemical digestion      (B) mechanical digestion      (C) involuntary action      (D) hydrolysis

15. Villi are present on

- (A) stomach      (B) large intestine      (C) small intestine      (D) mouth

16. Determine the value of  $k$  so that the following linear equations has no solution.

$$(3k + 1)x + 3y - 2 = 0$$

$$(k^2 + 1)x + (k - 2)y - 5 = 0$$

- (A) -3      (B) -4      (C) -1      (D) -12

17. The sum of a two - digit number and the number obtained by reversing the order of its digits is 165. If the digits differ by 3, find the number

- (A) 69, 96      (B) 45, 54      (C) 86, 68      (D) 92, 29

18. Students of a class are made to stand in rows. If one student is extra in a row, there would be 2 rows less. If one student is less in row, there would be 3 rows more. Find the total number of students in the class.

- (A) 30      (B) 40      (C) 60      (D) 120



25. Given that  $\cos(A - B) = \cos A \cos B + \sin A \sin B$ , find the value of  $\cos 15^\circ$ .

(A)  $\cos 15^\circ = \frac{\sqrt{3}+1}{2\sqrt{2}}$

(B)  $\cos 15^\circ = \frac{\sqrt{3}+1}{2\sqrt{2}} \cdot 3$

(C)  $\cos 15^\circ = \frac{\sqrt{3}+1}{2\sqrt{2}} \cdot 2$

(D)  $\cos 15^\circ = \frac{\sqrt{3}+1}{2\sqrt{2}} \cdot 1$

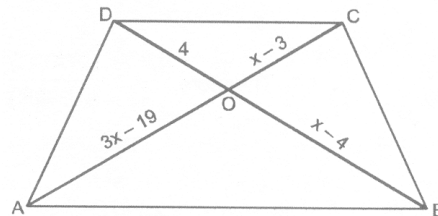
26. In the given figure,  $AB \parallel CD$ . Find the value of  $x$ .

(A) 8 or 11

(B) 4 or 9

(C) 8 or 7

(D) 12 or 3



27. The sum of three number in A.P. is -3 and their product is 8. Find the numbers.

(A) -3, 2, -1

(B) -4, -2, 1

(C) -4, -1, 2

(D) -1, -2, 4

28. The hypotenuse of a right triangle is 25 cm. The difference between the lengths of the other two sides of the triangle is 5 cm. Find the lengths of these sides.

(A) 30,20

(B) 40,35

(C) 80,75

(D) 20,15

29. For what value of  $k$ ,  $(4 - k)x^2 + (2k + 4)x + (8k + 1)$  is a perfect square.

(A) 0 or 3

(B) 0 or 4

(C) 0 or 8

(D) 0 or 12

30. If  $x = \frac{4}{3}$  is a root of the polynomial  $f(x) = 6x^3 - 11x^2 + kx - 20$  then find the value of  $k$ .

(A) 19

(B) 14

(C) 18

(D) 12

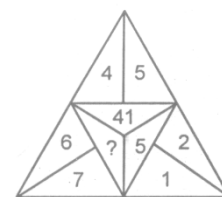
31. ? is

(A) 16

(B) 9

(C) 85

(D) 112



32. if  $D = 4$  and  $COVER = 63$ , then  $BASIS = ?$

(A) 49

(B) 50

(C) 54

(D) 55

33. In a row of girls, Mardula is 18th from the right and Sanjana is 18th from the left. If both of them exchange their position, Sanjana becomes 25th from the left, how many girls are there in the row?

(A) 40

(B) 41

(C) 42

(D) 35

34. If  $p + q = r$ , then it is not possible that

(A)  $p > q > r$

(B)  $p < q + r$

(C)  $p \times q > r$

(D)  $p + q \times r$

35. Soni, who is Dubey's daughter, says to Preeti, "Your mother Shyama is the youngest sister of my father, Dubey's Father's Third child is Prabhat". How is Prabhat related to Preeti?

- (A) Uncle                      (B) Father                      (C) Grandmother                      (D) Father in law

36. Sanjay went 70 metres in the East before turning to his right. he went 10 metres before turning to his right again and went 10 metres from this point. From there he went 90 metres to the North. How far was he from the starting point?

- (A) 80 metres                      (B) 100 metres  
(C) 140 metres                      (D) 260 metres

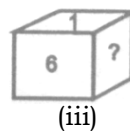
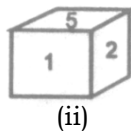
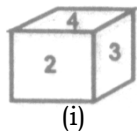
37. On what dates of October, 1975 did Tuesday fall?

- (A) 3 Odd days                      (B) 2 Even days                      (C) 0                      (D) All Answer

38. The time in the clock is 4 : 46, what is the mirror image ?

- (A) 7:14                      (B) 4:64                      (C) 8:14                      (D) 12:64

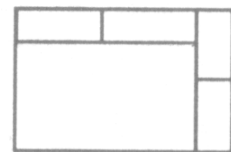
39. From the following figures of dice, find which number will come in place of '?'



- (A) 4                      (B) 5                      (C) 2                      (D) 3

40. What is the number of rectangles in the following figure?

- i. 6  
ii. 7  
iii. 8  
iv. 9



41. Ravi traveled 4 km straight towards south. He turned left and traveled 6 km straight, then turned right and traveled 4 km straight. How far is he from the starting point ?

- (A) 8 km                      (B) 10 km                      (C) 12 km                      (D) 18 km

42. Find the days of the week on 16 January, 1969.

- (A) Tuesday                      (B) Thursday                      (C) Friday                      (D) Monday

43. 3, 6, 24, 30, 63, 72, ?, 132

- (A) 30                      (B) 40                      (C) 80                      (D) 120

44. (ABC) - 6, (DEF) - 15, (GHI) - 24?

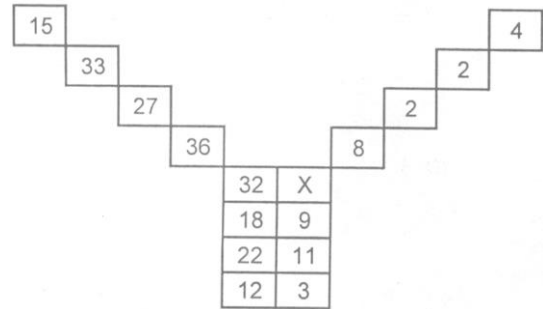
(A) (JKL) - 33

(B) (RTY) - 34

(C) (LOK) - 38

(D) (MNO) - 32

45. Find the value of X in the following figure:



(A) 3

(B) 4

(C) 8

(D) 12

**ROUGH WORK**