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Floor Number 3, Sri Venkata Sai Complex,  
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Telangana 500033, India (Beside Indwell House)

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#36, 15th Cross, 3rd Block, Near South End Circle, Opp. Central  
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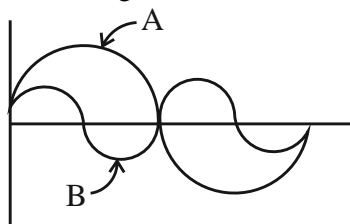
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## SECTION-A : PHYSICS

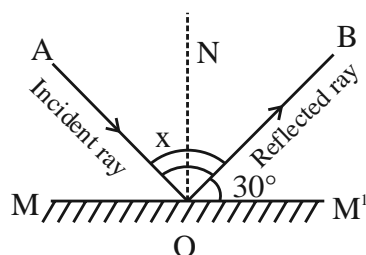
This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

- Rolling friction is smaller than\_\_\_\_\_.
  - Sliding friction
  - Static friction
  - Both 1 and 2
  - None of the above
- Pressure exerted by gases is due to-
  - Bombardment of molecules on walls of container
  - Bombardment of molecules on the base of container
  - Collision of molecules in the container
  - The atmosphere
- A girl of mass 40 kg wears heels with total area of  $1 \text{ cm}^2$  in contact with ground, pressure exerted on ground by girl is (acceleration due to gravity =  $10 \text{ m/s}^2$ )-
  - $4 \times 10^{-5} \text{ Pa}$
  - $4 \times 10^4 \text{ Pa}$
  - $4 \times 10^5 \text{ Pa}$
  - $40 \times 10^5 \text{ Pa}$
- In order to reduce air and water resistance, objects are shaped-
  - Oblongata
  - Rectangular
  - Conical
  - Streamlined
- A piston of cross sectional area  $100 \text{ cm}^2$  is used in a hydraulic press to exert a force of  $10^7$  dyne on the water. The cross sectional area of the other piston which supports an object having a mass of 2000kg is:
  - $100 \text{ cm}^2$
  - $10^9 \text{ cm}^2$
  - $2 \times 10^{10} \text{ cm}^2$
  - $2 \times 10^4 \text{ cm}^2$
- Consider two sound waveforms as shown in figure below:



- Wave A is soft and wave B loud
  - Wave A shrill and wave B hoarse
  - Wave A is soft and wave B is shrill
  - Wave A is loud and wave B is shrill
- The twinkling of stars at night is due to the phenomena
    - Reflection
    - Refraction
    - Transmission
    - Distance of stars from earth

8.



Find the value of x

- $60^\circ$
  - $90^\circ$
  - $120^\circ$
  - $30^\circ$
- A body of mass m is placed in freely falling lift. The apparent mass of the body will be-
    - $m(g+g)$
    - Zero
    - m
    - mg
  - Unit of universal gravitational constant is
    - $\frac{\text{Nm}^2}{\text{Kg}}$
    - $\frac{\text{Nm}^2}{\text{Kg}^2}$
    - $\frac{\text{NKg}^2}{\text{m}^2}$
    - $\frac{\text{Nm}}{\text{Kg}^2}$

CLASS - IX

11. A stone thrown vertically upward with a velocity of 50 m/s. ( $g = 10 \text{ m/s}^2$ ). What is the maximum height reached by stone?
- (1) 125 m (2) 250 m  
(3) 25 m (4) 150 m
12. A body measured 10N in air and 4N when put in water. The buoyant force is
- (1) 3N (2) 7N  
(3) 4N (4) 6N
13. The speed of wave is 360 m/s. What is the wavelength of wave if it's frequency is 500 Hz
- (1) 7.2 m (2) 0.72 m  
(3) 0.72 cm (4) 0.68 cm
14. A hot air balloon starts rising from ground with an acceleration of  $1.25 \text{ m/s}^2$ . After 8 sec, a stone is dropped from it. The stone will
- (1) Cover a distance of 40m before hitting the ground  
(2) Have a displacement of 50m on hitting the ground  
(3) Reach the ground in 4 sec  
(4) Starts moving ground instantly after being released.
15. Which of the following aqueous solutions will conduct an electric current quite well?
- (1) Sugar (2) HCl  
(3) Pure water (4) None of these

**SECTION-B : CHEMISTRY**

This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

16. X gm Sulphur has as many atoms as in 3 gm of Carbon. The value of X is
- (1) 4 (2) 8  
(3) 16 (4) 32
17. Temperature of water in a beaker is  $40^\circ\text{C}$ . Its value in Fahrenheit scale is
- (1)  $110^\circ\text{F}$  (2)  $104^\circ\text{F}$   
(3)  $130^\circ\text{F}$  (4)  $116^\circ\text{F}$
18. Absolute mass of proton is
- (1)  $9.109 \times 10^{-28} \text{ gm}$  (2)  $1.67 \times 10^{-29} \text{ gm}$   
(3)  $1.67 \times 10^{-24} \text{ gm}$  (4)  $1.6 \times 10^{-19} \text{ gm}$
19. Rutherford's scattering experiment is related to the size of the
- (1) Nucleus (2) Proton  
(3) Electron (4) Neutron
20. A mixture of sulphur and carbon disulphide is
- (1) Heterogeneous and shows Tyndall effect.  
(2) Homogeneous and shows Tyndall effect.  
(3) Heterogeneous and does not show Tyndall effect.  
(4) Homogeneous and does not show Tyndall effect
21. The correct formula of calcium phosphate is
- (1)  $\text{CaPO}_4$  (2)  $\text{Ca}_3(\text{PO}_4)_2$   
(3)  $\text{Ca}_3\text{P}$  (4)  $\text{Ca}_3\text{P}_2$
22. To convert 10 gm of ice at  $-2^\circ\text{C}$  to vapour at  $115^\circ\text{C}$ , we need to know the following values
- (a) Latent heat of fusion of ice  
(b) Latent heat of vaporisation of water  
(c) Specific heat of water  
(d) Specific heat of steam  
(e) Specific heat of ice
- (1) Only a, b and c (2) Only a, b and e  
(3) Only a, c and e (4) All a, b, c, d and e

CLASS - IX

23. The number of molecules in 11g of  $\text{CO}_2$  is same as that in  
 (1) 8 g of oxygen gas (2) 16 g of oxygen gas  
 (3) 17 g of CO gas (4) 3.5 g of CO gas
24. The average atomic mass of a sample of an element X is 16.24. What are the percentage of isotope  $^{16}_8\text{X}$  and  $^{18}_8\text{X}$  in the sample?  
 (1)  $^{16}_8\text{X} = 10\%$  and  $^{18}_8\text{X} = 90\%$  (2)  $^{16}_8\text{X} = 90\%$  and  $^{18}_8\text{X} = 10\%$   
 (3)  $^{16}_8\text{X} = 52\%$  and  $^{18}_8\text{X} = 48\%$  (4) None of these
25. Brass is a  
 (1) Compound (2) Element  
 (3) Heterogeneous mixture (4) Homogeneous mixture
26. One gram of which of the following contains largest number of oxygen atoms?  
 (1) O (2)  $\text{O}_2$   
 (3)  $\text{O}_3$  (4) All contains same
27. The proton and neutron are collectively called as  
 (1) Deuteron (2) Positron  
 (3) Meson (4) Nucleons
28. If 11 g of NaCl is dissolved in 99 g of water, the concentration (mass %) of the solution formed is  
 (1) 11.1% (2) 10%  
 (3) 88.9% (4) None of these
29. The e/m of anode rays depends upon  
 (1) Nature of electrode (2) Nature of gas  
 (3) Nature of discharge tube (4) All of these
30. Number of neutrons in the radioactive isotope of hydrogen will be  
 (1) 0 (2) 1  
 (3) 2 (4) 3

**SECTION-C : BIOLOGY**

This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

31. Match Column-I with Column-II and select the correct option from the codes given below.
- | Column-I                                       | Column-II                                      |
|--|--|
| (a) Similipal National Park                    | (i) Karnataka                                  |
| (b) Kanha National Park                        | (ii) Madhya Pradesh                            |
| (c) Manas Sanctuary                            | (iii) Orissa                                   |
| (d) Bandipur Sanctuary                         | (iv) Assam                                     |
| (1) (a)- (i), (b)- (iii), (c)- (iv), (d)- (ii) | (2) (a)- (iv), (b)- (ii), (c)- (i), (d)- (iii) |
| (3) (a)- (iii), (b)- (iv), (c)- (ii), (d)- (i) | (4) (a)- (iii), (b)- (ii), (c)- (iv), (d)- (i) |
32. Spirogyra differs from Paramecium in the presence of  
 (1) Plastids (2) Mitochondria  
 (3) Nucleus (4) Golgi bodies
33. Which of the following is a viviparous animal?  
 (1) Bat (2) Cow  
 (3) Monkey (4) All of these
34. Which of the following is a membraneless organelle?  
 (1) Ribosomes and golgi complex (2) ER and Ribosomes  
 (3) Only Ribosomes (4) Mitochondria
35. Which of the following diseases are caused by Viruses?  
 (1) AIDS and Polio (2) Mumps, Common cold  
 (3) Measles and chicken pox (4) All the above

CLASS - IX

36. Read the following statements about four kinds of microorganisms A, B, C and D.

- (i) Body of A is composed of filaments called hyphae.
- (ii) Body of B is composed of capsid and genetic material.
- (iii) Genetic material of C is known as nucleoid.
- (iv) D contain chlorophyll pigment and carry out photosynthesis.

Identify A, B, C, D and select the correct option.

- (1) A - Bacteria, B - Fungi, C - Virus, D - Algae
- (2) A - Algae, B - Bacteria, C - Fungi, D - Virus
- (3) A - Fungi, B - Virus, C - Bacteria, D - Algae
- (4) A - Bacteria, B - Virus, C - Fungi, D - Algae

37. Which among the following is not the function of hormones secreted by part labeled B in the diagram?



- (1) Stimulate oogenesis
- (2) Appearance of beard and moustaches
- (3) Initiation of menstrual cycle
- (4) Maintain pregnancy

38. Read the given statements and select the correct option

**Statement 1 :** Size of vacuoles are large in plant cell

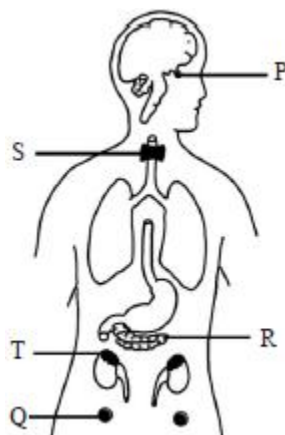
**Statement 2 :** Vacuoles store water and waste substances in plant cell.

- (1) Statement 1 and 2 are true
- (2) Statement 1 is false and statement 2 is true
- (3) Statement 1 is true and statement 2 is false
- (4) Both the statements are false

39. Select the correct pair from the following

- (1) Silver revolution → milk production
- (2) Blue revolution → egg production
- (3) Green revolution → fish production
- (4) Yellow revolution → oil production

40. A large number of functions are performed by different hormones secreted by endocrine glands. Match the given functions (a, b, c, d and e) to the labelled glands in the figure and select the correct option.



- a. Maintains a steady level of glucose in the blood.
- b. Helps in the growth of human body and also sends signals to other organs to secrete hormones.
- c. Controls secondary sexual characters and maintains pregnancy.
- d. Controls rate at which food is oxidised by the cells to produce energy.
- e. Increases blood pressure and heart rate, when the body experiences stress.

a      b      c      d      e

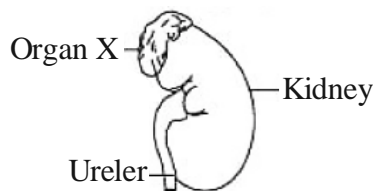
- (1) R    P    Q    T    S
- (2) P    R    Q    S    T
- (3) S    P    Q    R    T
- (4) R    P    Q    S    T

41. Transport of water and salt is mediated by

- (1) Xylem
- (2) Sieve tubes
- (3) Sclerenchyma
- (4) Phloem

CLASS - IX

42. Refer to the diagram showing organ X of the human body and read the following paragraph.



Organ X secretes two hormones P and Q. P prepares our body to function at maximum efficiency during emergency situations whereas Q maintains the correct salt balance in the blood.

Identify P and Q and select the correct option.

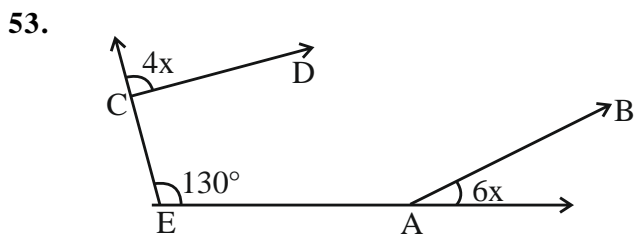
- (1) P - Aldosterone, Q - Thyroxine                      (2) P - Adrenaline, Q - Aldosterone  
 (3) P - Insulin,, Q - Adrenaline                      (4) P - Thyroxine, Q - Adrenaline
43. Van mahotsava is meant for  
 (1) Afforestation    (2) Deforestation  
 (3) Commercial forestry                                      (4) Start of grazing season
44. Read the following statements (a – c) and select the option which correctly fills up the blanks in these statements.  
 (a) An organism that transmits a disease from an infected person to a healthy person is called \_\_ (i) \_\_.  
 (b) Poliomyelitis is a \_\_ (ii) \_\_ disease and anthrax is a \_\_ (iii) \_\_ disease.  
 (c) Allergic diseases (e.g. asthma) are \_\_ (iv) \_\_ diseases.  
 (1) (i)-Secondary host, (ii)-Viral, (iii)-Bacterial, (iv)-Communicable  
 (2) (i)-Vector, (ii)-Bacterial, (iii)-Fungal, (iv)-Communicable  
 (3) (i)-Vector, (ii)-Viral, (iii)-Bacterial, (iv)-Non-communicable  
 (4) (i)-Parasite, (ii)-Bacterial, (iii)-Protozoan, (iv)-Infections
45. Which of the following carries the parasite that cause malaria  
 (1) Culex mosquito    (2) Anopheles mosquito  
 (3) Aedes mosquito    (4) Tse-tse fly

### SECTION-D : MATHEMATICS

This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

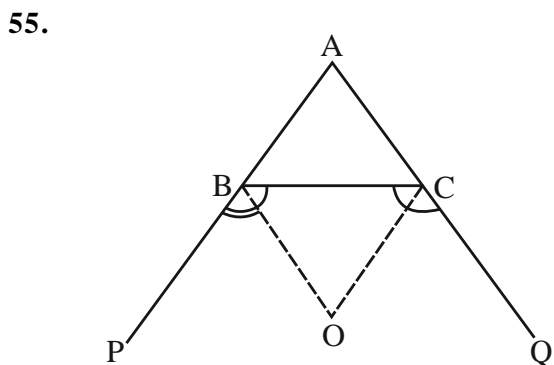
46.  $\left(\frac{5^x + 5^{x+1}}{5^{x+1} - 5^x}\right)$  is equal to  
 (1) 6/5    (2)  $\frac{2}{3}$     (3)  $\frac{3}{2}$     (4)  $\frac{5}{6}$
47.  $\frac{1}{1+x^{m-n}} + \frac{1}{1+x^{n-m}} =$   
 (1)  $x^2$     (2) 0    (3) 1    (4)  $(x^m)^n$
48.  $x^2 + \frac{1}{x^2} = 38$ , then value of  $x - \frac{1}{x}$  is  
 (1) 6    (2) 4    (3) 0    (4) None of these
49. If  $(a + b) : (a - b) = 15 : 1$ , then find the value of  $a^2 - b^2$   
 (1)  $\frac{15b^2}{49}$     (2)  $2b^2$     (3)  $\frac{13b^2}{49}$     (4)  $\frac{17b^2}{8}$
50. Sum of two integers is 10 and sum of its reciprocals is 5/12. Identify the larger of the two integers.  
 (1) 2    (2) 4    (3) 6    (4) 8

51. What is the value of expression  $\frac{1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9}{1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9}$  ?
- (1) 40320                      (2) 8064                      (3) 403200                      (4) 72576
52. If  $1^2 + 2^2 + 3^2 + 4^2 + \dots + 12^2 = 650$ , find the value of  $2^2 + 4^2 + 6^2 + \dots + 24^2$
- (1) 2300                      (2) 1300                      (3) 1500                      (4) 2600



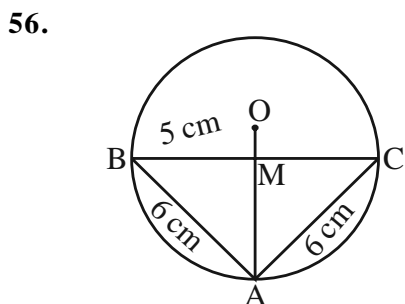
find the value of x. If  $AB \parallel CD$

- (1)  $26^\circ$                       (2)  $13^\circ$                       (3)  $23^\circ$                       (4)  $46^\circ$
54. If  $\frac{x}{y} + \frac{y}{x} = -1$  ( $x, y \neq 0$ ), what is the value of  $x^3 - y^3$  ?
- (1) 1                      (2) -1                      (3)  $\frac{1}{2}$                       (4) 0



In the given figure, BO and CO are the angle bisectors of the external angles of  $\Delta ABC$ . Find  $\angle BOC$ .

- (1)  $90^\circ - \angle A/2$                       (2)  $90^\circ + \angle A/2$                       (3)  $180^\circ - \angle A/2$                       (4)  $180^\circ + \angle A/2$

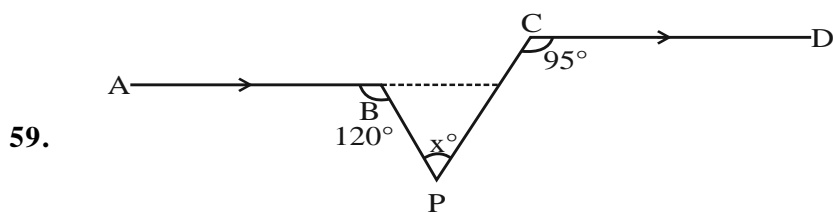


O is the centre of the circle with radius 5 cm. AB and AC are two equal chords such that  $AB = AC = 6$  cm. If OA meets BC at M. Find OM.

- (1) 2 cm                      (2) 3 cm                      (3) 1.4 cm                      (4) 3.6 cm
57. In a single throw of a die, what is the probability of getting a prime number ?
- (1) 2                      (2)  $\frac{1}{2}$                       (3)  $\frac{3}{2}$                       (4)  $\frac{3}{4}$

CLASS - IX

58. Find the volume of a cube whose surface Area is  $150 \text{ cm}^2$  ?  
 (1)  $25\sqrt{5} \text{ cm}^3$                       (2)  $64 \text{ cm}^3$                       (3)  $125 \text{ cm}^3$                       (4)  $27 \text{ cm}^3$



- If  $AB \parallel CD$ , what is the value of  $x$   
 (1)  $25^\circ$                       (2)  $35^\circ$                       (3)  $45^\circ$                       (4)  $55^\circ$
60. The mean of  $a, b, c, d$  and  $e$  is 28. If the mean of  $a, c$  and  $e$  is 24, what is the mean of  $b$  and  $d$  ?  
 (1) 31                      (2) 32                      (3) 33                      (4) 34

**SECTION-E : IQ (MENTAL ABILITY)**

This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

61. A B C D E F G H I J K L M N O P Q R S T U V W X Y Z  
 If the first five letters of English alphabet are reversed, so are the next five and so on and last letter is left unchanged then what will be 2nd letter to the left of 17th letter from the right?  
 (1) S    (2) G  
 (3) H    (4) R
62. Directions : For the Assertion (A) and Reason (R) below, choose the correct alternative  
 Assertion (A) : Pressure cookers are fitted with ebonite handles.  
 Reason (R) : Ebonite is strong.  
 (1) Both A and R are true and R is the correct explanation of A.  
 (2) Both A and R are true but R is NOT the correct explanation of A.  
 (3) A is true but R is false.  
 (4) A is false but R is true.
63. Rita told Mani, "The girl I met yesterday at the beach was the youngest daughter of the brother-in-law of my friend's mother." How is the girl related to Rita's friend ?  
 (1) Cousin    (2) Daughter  
 (3) Niece    (4) Friend
64. In certain language, CHAMPION is coded as HCMAIPNO, how is NEGATIVE coded in that code ?  
 (1) NEAGVEIT    (2) ENAGITEV  
 (3) MGAETVIE    (4) EGAITEVN
65. One morning after sunrise, Suresh was standing facing a pole. The shadow of the pole fell exactly to his right. To which direction was he facing?  
 (1) East    (2) West  
 (3) South    (4) Data is inadequate
66. If Q means 'add to', J means 'multiply by', T means 'subtract from' and K means 'divide by' then  $30 \text{ K } 2 \text{ Q } 3 \text{ J } 6 \text{ T } 5 = ?$   
 (1) 18    (2) 28  
 (3) 31    (4) 103
67. What should come in place of question mark (?) in the following number series?  
 1, 2, 3, 10, ?, 9802  
 (1) 99    (2) 199  
 (3) 299    (4) 999



CLASS - IX

68. P, Q, R, S, T, U, V and W are sitting round the circle and are facing the centre:  
 P is second to the right of T who is the neighbour of R and V.  
 S is not the neighbour of P.  
 V is the neighbour of U.  
 Q is not between S and W. W is not between U and S.  
 Then Who is sitting opposite to U ?

- (1) Q (2) P  
 (3) R (4) W

69. Determine which of the given conclusions logically follows from the given statements, disregarding commonly known facts.

**Statements:**

Some actors are singers.  
 All the singers are dancers.

**Conclusions:**

- (i) Some actors are dancers.  
 (ii) No singer is an actor.

- (1) Neither (i) nor (ii) follows (2) Either (i) or (ii) follows  
 (3) Only conclusion (ii) follows (4) Only conclusion (i) follows

70. What should come in place of question mark (?) in the following number series?

132    156    ?    210    240    272

- (1) 196 (2) 182  
 (3) 199 (4) 204

71. In a dinner party both fish and meat were served. Some took only fish and some only meat. There were some vegetarians who did not accept either. The rest accepted both fish and meat. Which of the following Venn-diagrams correctly reflects this situation?

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

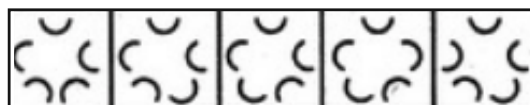
72. Which figure completes the series?

Question Figures :



A    B    C    D    E

Answer Figures :



1    2    3    4    5

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

73. Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).



X

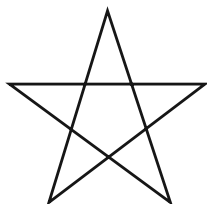


1    2    3    4

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

CLASS - IX

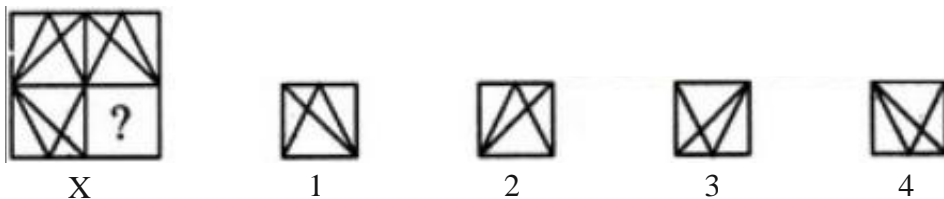
74.



Find the number of triangles in the given figure ?

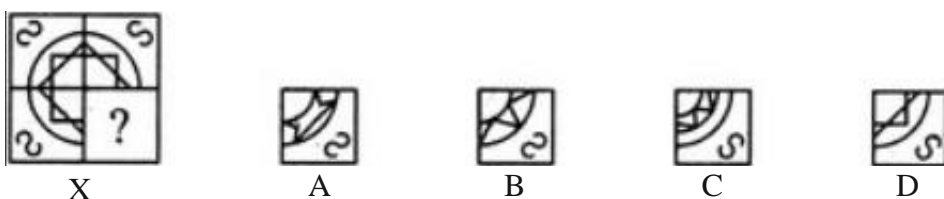
- (1) 5 (2) 8  
(3) 9 (4) 10

75. Identify the figure that completes the pattern.



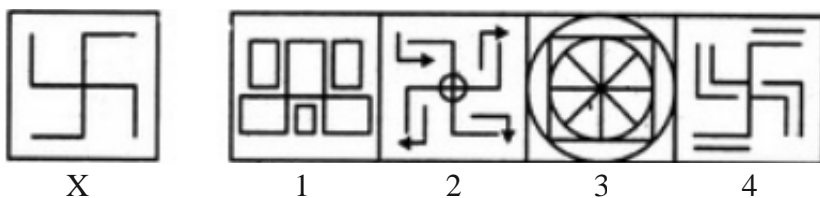
- (1) 1 (2) 2  
(3) 3 (4) 4

76. Identify the figure that completes the pattern.



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

77. Find out the alternative figure which contains figure (X) as its part.



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

78. Choose the alternative which is closely resembles the water-image of the given combination.

US91Q4M5W3

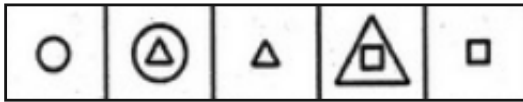
- (A) U2θJθ+W2W3  
(B) η26Jθ+W2W3  
(C) USθJθ+W2Wε  
(D) η2θJθ+W2W3

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

CLASS - IX

79. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.

Problem Figures:



A      B      C      D      E

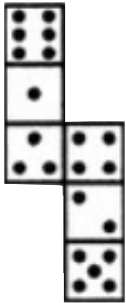
Answer Figures:



1      2      3      4      5

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

80.



How many dots lie opposite to the face having three dots, when the given figure is folded to form a cube?

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

ANSWER KEY

TEST DATE:

PHYSICS	Q. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15										
	Ans.	3	1	4	4	4	4	2	3	3	2	1	4	2	3	2										
CHEMISTRY	Q. No.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30										
	Ans.	2	2	3	1	1	2	4	1	2	4	1	4	2	2	3										
BIOLOGY	Q. No.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45										
	Ans.	4	1	4	3	4	3	2	1	4	4	1	2	1	3	2										
MATHS	Q. No.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60										
	Ans.	3	3	1	1	3	2	4	2	4	1	3	2	3	2	4										
MAT	Q. No.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75						76	77	78	79	80
	Ans.	3	3	1	2	3	2	1	2	4	2	1	1	3	4	3						4	3	4	4	4