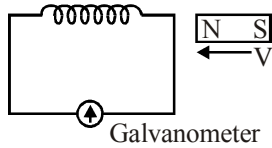
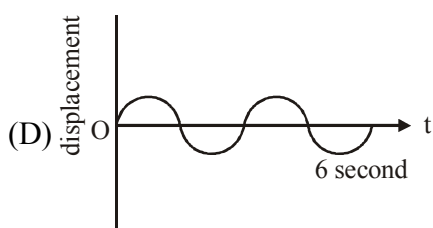
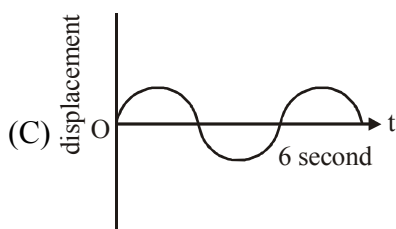
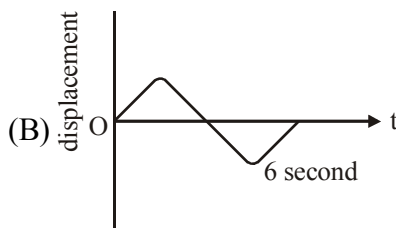
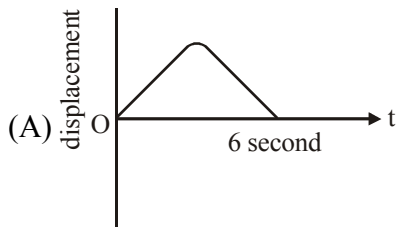


Q.1 In Faraday's experiment (figure below), choose the wrong statement



- (A) On increasing the speed of magnet, deflection in galvanometer increases
- (B) On reversing the direction of motion of magnet, deflection in galvanometer gets reversed
- (C) On increasing the number of turns in coil, current decreases.
- (D) On keeping the magnet fixed, but moving the coil, galvanometer registers a current.

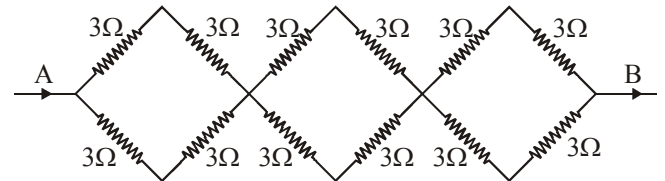
Q.2 For the wave shapes shown in figures the wave of maximum frequency will be



Q.3 Which of the following quantities do not change when a resistor connected to a battery is heated due to the current ?

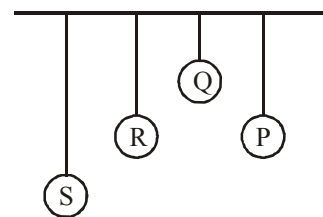
- (A) Drift speed
- (B) Resistivity
- (C) Resistance
- (D) Number of free electrons

Q.4 In the network of resistors shown in the adjoining figure, the equivalent resistance between A and B is



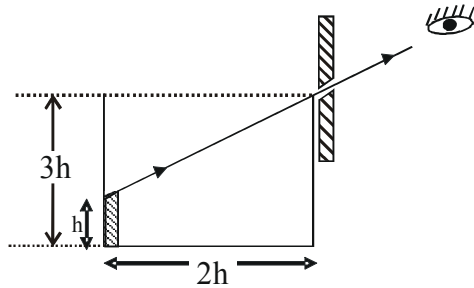
- (A) 54Ω
- (B) 18Ω
- (C) 36Ω
- (D) 9Ω

Q.5 Four pendulums P, Q, R and S are suspended from same elastic supports as shown in figure. Out of these P and R are the same length. Q is smaller than P and S is longest. If the pendulum bob P is displaced to give small vibration



- (A) amplitude of vibration for S is maximum
- (B) amplitude of vibration for R is maximum
- (C) amplitude of vibration for Q is maximum
- (D) amplitude of vibration for all is same

Q.6 An observer can see through a pin-hole the top end of a thin rod of height h , placed as shown in the figure. The beaker height is $3h$ and its radius h . When the beaker is filled with a liquid up to a height $2h$, he can see the lower end of the rod. Then the refractive index of the liquid is

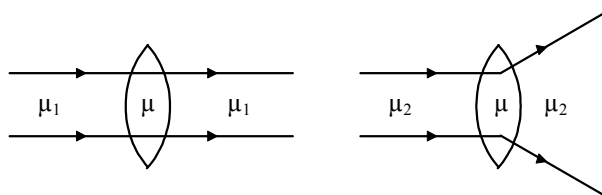


- (A) $\frac{5}{2}$ (B) $\sqrt{\frac{5}{2}}$
 (C) $\sqrt{\frac{3}{2}}$ (D) $\frac{3}{2}$

Q.7 In which case work is not done
 (A) a girl swimming in a pond
 (B) a windmill lifting water from a well
 (C) a standing man holding a suit case in his hand
 (D) a sail boat moving in the direction of wind

Q.8 The gravitational force between two objects of mass 1 kg each, separated by a distance of 1m in vacuum will be
 (A) zero (B) 6.675×10^{-11} N
 (C) 13.350×10^{-11} N (D) 3.337×10^{-11} N

Q.9 What is the relation between the refractive indices μ_1 and μ_2 , if the behaviour of light ray is as shown in the figure.

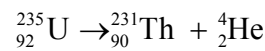


- (A) $\mu_1 > \mu_2$ (B) $\mu_1 < \mu_2$
 (C) $\mu_1 = \mu_2$ (D) None of these

Q.10 Camping equipment weighing 6000 N is pulled across a frozen lake by means of a horizontal rope. The coefficient of kinetic friction is 0.05. The work done by the campers in pulling the equipment 1000 m at constant velocity is
 (A) 3.1×10^4 J (B) 1.5×10^5 J
 (C) 3.0×10^5 J (D) 2.9×10^6 J

Q.11 The centripetal force is provided to the planet by the
 (A) Force of repulsion between the planet and the Sun
 (B) Force of attraction of the Sun
 (C) Heat energy of the Sun
 (D) Gravity of the planet

Q.12 A uranium nucleus at rest decays into a thorium nucleus and a helium nucleus, as shown below. Which of the following is true?



- (A) Each decay product has the same kinetic energy.
 (B) The decay products tend to go in the same direction.
 (C) The thorium nucleus has more momentum than the helium nucleus.
 (D) The helium nucleus has more kinetic energy than the thorium nucleus.

Q.13 For dynamo which one of the following statements is correct?
 (A) It converts the electrical energy into light energy.
 (B) It converts the kinetic energy into heat energy.
 (C) It converts the mechanical energy into electrical energy.
 (D) It converts the electrical energy into mechanical energy.

- Q.14 A single horizontal force F is applied to a block of mass M_1 which is in contact with another block of mass M_2 as shown in the figure. If the surface are frictionless, the force between the block is



- (A) $\frac{M_1 F}{M_2}$ (B) $\frac{M_1 M_2 F}{M_1 + M_2}$
 (C) $\frac{M_2 F}{M_1 + M_2}$ (D) $\frac{M_2 F}{M_1}$

- Q.15 Which of the following ray diagram is correct?

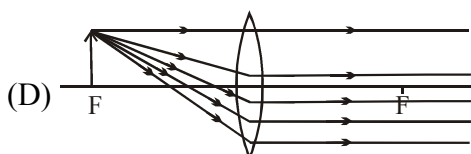
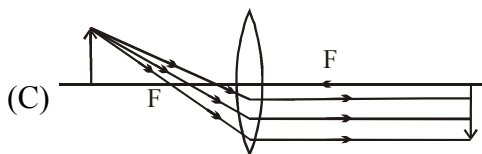
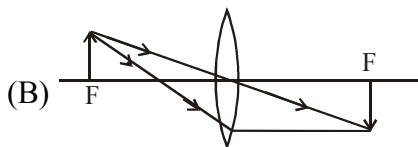
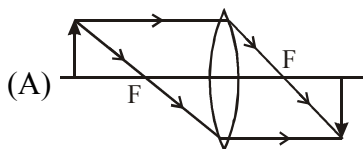


Image at infinity

- Q.16 Due to presence of which ion in aqua regia it act as a strong oxidising agent.
 (A) nascent oxygen (B) Nitrosyl chloride
 (C) Available chlorine (D) Nitrate ion
- Q.17 Pressure at sea level is
 (A) one atmosphere (B) 76 cm of Hg
 (C) 760 mm of Hg (D) All of the above

- Q.18 Rate of evaporation of water :
 (A) is more in coastal area than in non coastal area
 (B) is more in non coastal area than in coastal areas
 (C) is the same in both coastal and non coastal areas
 (D) cannot be predicted

- Q.19 Which of the following compound is most ionic compound ?
 (A) LiCl (B) NaCl
 (C) RbCl (D) CsCl

- Q.20 Iron fillings were added to solution of copper sulphate. After about 10 minutes, it was observed that the colour of the solution changed and a layer was deposited on iron fillings. The colour of the solution and that of the coating would respectively be
 (A) light green and reddish brown
 (B) yellow and green
 (C) brown and blue
 (D) red and greenish blue.

- Q.21 The melting point temperature of the solid state of a substance is 40°C . The freezing point temperature of the liquid state of the same substance will be
 (A) 35°C (B) 40°C
 (C) 45°C (D) can't predict

- Q.22 When one drop of a sample is mixed with one drop of universal indicator a green colour is produced. The pH value of this sample is in which range?

- (A) 3 to 5 (B) 6 to 8
 (C) 9 to 11 (D) 12 to 14

- Q.23 What is the percentage of solution when 40g of common salt dissolved in 320 g of water?
 (A) 12.5% (B) 14.3%
 (C) 11.1% (D) 10%

- Q.24 One of the following is an endothermic reaction. This is :
 (A) combination of carbon and oxygen to form carbon monoxide
 (B) combination of nitrogen and oxygen to form nitrogen monoxide
 (C) combination of glucose and oxygen to form carbon dioxide and water
 (D) combination of zinc and hydrochloric acid to form zinc chloride and hydrogen
- Q.25 The formula of silver phosphate is
 (A) AgPO_4 (B) Ag_3PO_4
 (C) $\text{Ag}_2(\text{PO}_4)_3$ (D) Ag_2PO_4
- Q.26 Based on the reactions given below, what is the correct decreasing order of the reactivity of the metals ?
 (i) $\text{Zn (s)} + \text{CuSO}_4(\text{aq}) \longrightarrow \text{ZnSO}_4(\text{aq}) + \text{Cu(s)}$
 (ii) $\text{Cu(s)} + 2\text{AgNO}_3(\text{aq}) \longrightarrow \text{Cu(NO}_3)_2(\text{aq}) + 2\text{Ag(s)}$
 (iii) $\text{Zn(s)} + \text{FeSO}_4(\text{aq}) \longrightarrow \text{ZnSO}_4(\text{aq}) + \text{Fe(s)}$
 (iv) $\text{Fe(s)} + \text{CuSO}_4(\text{aq}) \longrightarrow \text{FeSO}_4(\text{aq}) + \text{Cu(s)}$
 (A) $\text{Cu} > \text{Ag} > \text{Fe} > \text{Zn}$
 (B) $\text{Fe} > \text{Zn} > \text{Cu} > \text{Ag}$
 (C) $\text{Zn} > \text{Fe} > \text{Cu} > \text{Ag}$
 (D) $\text{Ag} > \text{Cu} > \text{Zn} > \text{Fe}$
- Q.27 Consider the reaction :
 $\text{KBr (aq)} + \text{AgNO}_3(\text{aq}) \longrightarrow \text{KNO}_3(\text{aq}) + \text{AgBr(s)}$
 This is an example of:
 (A) decomposition reaction
 (B) combination reaction
 (C) double displacement reaction
 (D) displacement reaction
- Q.28 Singapore's average altitude above sea level is 15 m while that of LaPaz, Bolivia's capital is 3640 m. Water boils at 100°C in Singapore. Which of the following can be boiling point of water in LaPaz?
 (A) 373K (B) 369 K
 (C) 376 K (D) 374 K
- Q.29 Which of the following statements regarding non-metals is false ?
 (A) 11 non-metals are in gaseous state
 (B) Gas carbon is a good conductor of heat and electricity
 (C) The black material inside a pencil is metal lead
 (D) All non-metals are non-sonorous in nature
- Q.30 10 mL of 0.1 N HCl is added to 990 mL solution of NaCl. The pH of the resulting solution is?
 (A) zero (B) 3
 (C) 7 (D) 10
- Q.31 Milk does not provide
 (A) Vitamins A and D
 (B) Minerals like phosphorus and calcium
 (C) Iron
 (D) Carbohydrates, proteins and fats.
- Q.32 Pusa Lerma is an improved variety of
 (A) Rice (B) Maize
 (C) Soya Bean (D) Wheat.
- Q.33 Excessive exposure of humans to U V-rays results in
 (i) damage to immune system
 (ii) damage to lungs
 (iii) skin cancer
 (iv) peptic ulcers
 (A) (i) and (ii) (B) (ii) and (iv)
 (C) (i) and (iii) (D) (iii) and (iv)
- Q.34 In the given figure the various trophic levels are shown in a pyramid. At which trophic level is maximum energy available?
 (A) T_4 (B) T_2
 (C) T_1 (D) T_3
- Q.35 Coordination via the nervous system tends to differ from that produced by the endocrine system because the nervous system
 (A) Is quick, precise and localized
 (B) Is slower and more pervasive
 (C) Does not require conscious activity
 (D) Has long-lasting effects

- Q.36 In reflex action the reflex arc is formed by
 (A) Brain → spinal cord → muscles
 (B) Receptor → spinal cord → muscles
 (C) Muscle → receptor → brain
 (D) Muscles → spinal cord → receptor
- Q.37 The decomposers in an ecosystem
 (A) convert inorganic material, to simpler forms
 (B) convert organic material to inorganic forms
 (C) convert inorganic materials into organic compounds
 (D) do not breakdown organic compounds.
- Q.38 The function of the glomerulus and Bowman's capsule of the nephron is to
 (A) Reabsorb water into the blood
 (B) Eliminate ammonia from the body
 (C) Reabsorb salts and amino acids
 (D) Filter the blood and capture the filtrate
- Q.39 Which of the following control the balance of human body ?
 (A) Cerebrum (B) Cerebellum
 (C) Optic lobes (D) Spinal cord
- Q.40 A cardiac cycle involves
 (A) Joint diastole-ventricular systole-auricular systole
 (B) Auricular systole-ventricular systole-complete cardiac distole
 (C) Auricular systole-joint diastole-ventricular systole
 (D) Auricular systole-ventricular diastole-joint diastole
- Q.41 Which one is a micronutrient
 (A) Iron (B) Calcium
 (C) Magnesium (D) Potassium
- Q.42 A high concentration of synthetic auxins is generally used for
 (A) Weed control
 (B) Enhancing root initiation
 (C) Controlling of cell enlargement
 (D) Preventing the growth of the lateral buds
- Q.43 Which of the following is not an endocrine gland?
 (A) Pancreas (B) Liver
 (C) Ovary (D) Thyroid
- Q.44 The sites of exchange of wastes, nutrients, gases and hormones between the blood and body cells are the
 (A) Arteries (B) Arterioles
 (C) Capillaries (D) Veins
- Q.45 Caecum is small blind sac which hosts some symbiotic micro-organisms. From it a small finger like vestigeal organ arises. This organ is called
 (A) Parotid gland
 (B) Vermis
 (C) Vermiform appendix
 (D) Lacteals
- Q.46 For which values of 'a' and 'b' does the following pair of linear equations have an infinite number of solutions
 $2x + 3y = 7$; $(a - b)x + (a + b)y = 3a + b - 2$
 (A) $a = 5, b = 1$ (B) $a = 4, b = 2$
 (C) $a = 1, b = 5$ (D) $a = 2, b = 4$
- Q.47 If the LCM of a and 18 is 36 and the HCF of a and 18 is 2, then a =
 (A) 2 (B) 3
 (C) 4 (D) 1
- Q.48 Four watches are ringing alarm bells in the interval of 6, 12, 15 and 18 seconds. If they start at the same time, how many times they will ring together in 4 hours ?
 (A) 80 (B) 81
 (C) 20 (D) 21

- Q.49 Find the nature of solution of the system of linear equations give by $3x + 4y = 5$ and $4x - 6y = 8$
 (A) unique solution
 (B) no solution
 (C) infinitely many solutions
 (D) inadequate data
- Q.50 If $x + y = 5$; then find the value of $x^3 + y^3 + 15xy - 125$
 (A) 5 (B) 0
 (C) 1 (D) 25
- Q.51 The value of $x + y$ in the solution of equations $\frac{x}{4} + \frac{y}{3} = \frac{5}{12}$ and $\frac{x}{2} + y = 1$ is
 (A) $1/2$ (B) $3/2$
 (C) 2 (D) $5/2$
- Q.52 In order that the six digit number $1x0x3x$ be divisible by 11, the digit x should be :
 (A) 2 (B) 1
 (C) 4 (D) 5
- Q.53 In an examination, 34% of the students failed in Mathematics and 42% failed in English. If 20% of the students failed in both the subjects, then the percentage of students who passed in both the subject was
 (A) 44 (B) 50
 (C) 54 (D) 56
- Q.54 In a ΔABC , $\angle C = 3\angle B = 2(\angle A + \angle B)$. Find the three angles.
 (A) $20^\circ, 40^\circ, 120^\circ$ (B) $60^\circ, 20^\circ, 100^\circ$
 (C) $120^\circ, 20^\circ, 40^\circ$ (D) $10^\circ, 40^\circ, 130^\circ$
- Q.55 The clustering of data around a central value is known as :
 (A) mean (B) mode
 (C) median (D) central tendency
- Q.56 The pair of linear equations $3x + 2y = 5$; $2x - 3y = 7$, have
 (A) One solution (B) Two solutions
 (C) Many solutions (D) No solution
- Q.57 If X is a point on the line AB and Y, Z are points outside such that $\angle AXY = 45^\circ$ and $\angle YXZ = 60^\circ$, then $\angle BXZ$ is equal to
 (A) 120° (B) 75°
 (C) 150° (D) 105°
- Q.58 Find a quadratic polynomial whose zeroes are $(2a + 1)$ and $(2b + 1)$ if a and b are the zeroes of the polynomial $f(t) = 2t^2 - 7t + 6$.
 (A) $2t^2 - 9t + 10$ (B) $t^2 - 9t + 20$
 (C) $t^2 - 7t + 10$ (D) $2t^2 - 7t + 10$
- Q.59 The sum of seven consecutive natural numbers is 1617. How many of these number are not prime?
 (A) 4 (B) 2
 (C) 5 (D) 7
- Q.60 If a set of data has zero as an observation, then which one of the following is NOT an appropriate measure of central tendency?
 (A) Arithmetic mean (B) Geometric mean
 (C) Median (D) Mode
- Q.61 In a right triangle, perpendicular is 1 and hypotenuse is 2. Find the value of $\frac{2 \tan \theta}{1 - \tan^2 \theta}$.
 (A) $\sqrt{3}$ (B) $\frac{1}{\sqrt{3}}$
 (C) $\frac{1}{2}$ (D) $\frac{1}{\sqrt{2}}$
- Q.62 Which of the following is a pair of coprimes?
 (A) (14, 35) (B) (18, 25)
 (C) {31, 93} (D) (32, 62)
- Q.63 A batsman makes a score of 87 runs in the 17th inning and thus increases his average by 3. Find his average after the 17th inning.
 (A) 36 (B) 38
 (C) 39 (D) 42

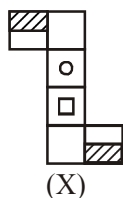
- Q.64 If $x = \sqrt{7} - \sqrt{5}$, $y = \sqrt{5} - \sqrt{3}$ and $z = \sqrt{3} - \sqrt{7}$, then the value of $x^3 + y^3 + z^3 - 2xyz$ is
- (A) $-4\sqrt{5} - 12\sqrt{3} + \sqrt{7}$
 (B) $-4\sqrt{5} + 2\sqrt{3} + 2\sqrt{7}$
 (C) $4\sqrt{5} + 12\sqrt{3} + 2\sqrt{7}$
 (D) $4\sqrt{5} - 12\sqrt{3} + \sqrt{7}$

- Q.65 ABCD is a parallelogram. If P be a point on CD such that $AP = AD$, then the measure of $\angle PAB + \angle BCD$ is
- (A) 180° (B) 225°
 (C) 240° (D) 135°

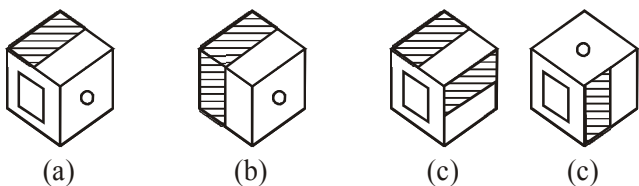
Direction (Q.66 & 67): Study the letter series carefully and see, which letters are missing in the series. Select the correct group of letters from given alternatives which complete the series.

- Q.66 a _ bbc _ aab _ cca _ bbcc
 (A) bacb (B) acba
 (C) abba (D) caba
- Q.67 aab _ aa _ bbb _ aaa _ bbba
 (A) abba (B) baab
 (C) aaab (D) abab

Direction (Q.68) : The sheet of paper shown in the figure (X) given on the left hand side, in each problem, is folded to form a box. Choose from amongst the alternatives (A), (B), (C) and (D), the boxes that are similar to the box will be formed.



Q.68



- (A) a and c only (B) a and b only
 (C) b and d only (D) c and d only

- Q.69 Complete the analogy.
 PS : KH :: MT : ____
 (A) NH (B) NG
 (C) LG (D) MG

Directions (Q.70 and Q.71) : Study the information given below and answer the questions that follow:

'A + B' means 'A is the daughter of B'; 'A - B' means 'A is the husband of B'; 'A × B' means 'A is the brother of B'.

- Q.70 If $P + Q - R$, which of the following is true?
 (A) R is the mother of P
 (B) R is the sister-in-law of P
 (C) R is the aunt of P
 (D) R is the mother-in-law of P
- Q.71 If $P + Q \times R$, which of the following is true?
 (A) P is the niece of R
 (B) P is the daughter of R
 (C) P is the cousin of R
 (D) P is the daughter-in-law of R

- Q.72 In a certain coding system, RBM STD BRO PUS means 'the cat is beautiful'. TNH PUS DIM STD means 'the dog is brown'. PUS DIM BRO PUS CUS means 'the dog has the cat'. What is the code for 'has' ?
 (A) CUS (B) BRO
 (C) DIM (D) STD

- Q.73 If in a certain language, ANTICIPATION is written as ICITNANIOITAP. How is PRODUCTIVITY written in that language?
 (A) CUDORPYTIVTI
 (B) CUDORPYTIVIT
 (C) CUDOPRYTIVIT
 (D) CUDORPTYIVIT

Direction (Q.74 to Q.75) : In each of the following letter series, some letters are missing which are given in that order as one of the alternatives below it. Choose the correct alternative.

- Q.74 a _ c _ abb _ a _ bc _ bc _ ab
 (A) cbcaaa (B) bcccab
 (C) bccaac (D) acbabc

- Q.75 R — S — T — KSK — RK — KT.
 (A) RKRTS (B) KKRTS
 (C) KKTRS (D) KRSTU

Direction (Q.76 & 77) : Read the situation given below to answer these questions.

a, b, c, d, e, f, g, h and i are nine houses. c is 2km east of b. a is 1km north of b and h is 2km south of a. g is 1km west of h while d is 3km east of g and f is 2km north of g. i is situated just in middle of b and c while e is just in middle of h and d.

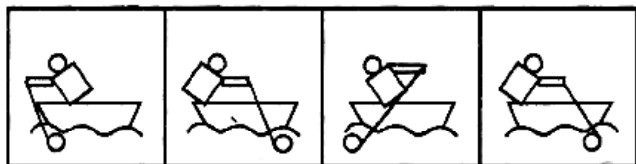
- Q.76 Distance between e and g is
 (A) 2 km (B) 1 km
 (C) 5 km (D) 1.5 km
- Q.77 Distance between e and i is
 (A) 4 km (B) 2 km
 (C) 1 km (D) 3 km
- Q.78 If 5-4-7 is the code language of BAD, what is the code language of DARK?
 (A) 7-4-20-14 (B) 7-4-21-3
 (C) 7-4-21-14 (D) 7-4-20-13

Directions (Q.79) : In the following questions, choose correct mirror-image of the Fig. (X) from amongst the four alternatives (A), (B), (C) and (D) given along with it.

Q.79



(X)



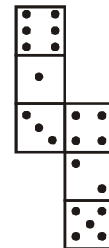
(A) (B) (C) (D)

- Q.80 There are 23 steps to reach a temple. On descending from the temple Ram takes two steps in the same time. Shyam ascends one step. If they start to work simultaneously, at which step will they meet each other ?

(A) 8th (B) 9th
 (C) 10th (D) 11th

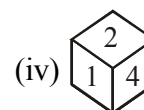
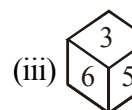
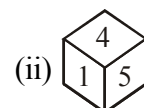
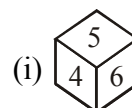
Direction (Q.81 & Q.82) : Identify the correct pair.

- Q.81 12, 20, 56, 90, 132
 (A) (20, 30) (B) (56, 42)
 (C) (90, 72) (D) (132, 110)
- Q.82 1, 2, 3, 5, 8, 13, 20, 34
 (A) (1, 2) (B) (13, 12)
 (C) (20, 21) (D) None of these
- Q.83 Arrange the following in a meaningful order :
 1. Elephant 2. Cat
 3. Mosquito 4. Tiger 5. Whale
 (A) 5 3 1 2 4 (B) 1 3 5 4 2
 (C) 3 2 4 1 5 (D) 2 5 1 4 3
- Q.84 How many dots lie opposite the face having three dots, when the given figure is folded to form a cube?



(A) 2 (B) 4
 (C) 5 (D) 6

- Q.85 Four positions of a dice are shown below. What number must be at the bottom face when the dice is in the position as shown in fig. (iii)?



(A) 1 (B) 2
 (C) 4 (D) 6

ANSWER KEY

Class : X

SAMPLE PAPER

Q.1	C	Q.31	C	Q.61	A
Q.2	D	Q.32	D	Q.62	B
Q.3	D	Q.33	C	Q.63	C
Q.4	D	Q.34	C	Q.64	B
Q.5	B	Q.35	A	Q.65	A
Q.6	B	Q.36	B	Q.66	B
Q.7	C	Q.37	B	Q.67	B
Q.8	B	Q.38	D	Q.68	A
Q.9	B	Q.39	B	Q.69	B
Q.10	C	Q.40	B	Q.70	A
Q.11	B	Q.41	A	Q.71	A
Q.12	D	Q.42	A	Q.72	A
Q.13	C	Q.43	B	Q.73	B
Q.14	C	Q.44	C	Q.74	C
Q.15	A	Q.45	C	Q.75	B
Q.16	B	Q.46	A	Q.76	A
Q.17	D	Q.47	C	Q.77	C
Q.18	B	Q.48	B	Q.78	C
Q.19	D	Q.49	A	Q.79	D
Q.20	A	Q.50	B	Q.80	A
Q.21	B	Q.51	B	Q.81	C
Q.22	B	Q.52	D	Q.82	C
Q.23	C	Q.53	A	Q.83	C
Q.24	B	Q.54	A	Q.84	D
Q.25	B	Q.55	D	Q.85	C
Q.26	C	Q.56	A		
Q.27	C	Q.57	B		
Q.28	B	Q.58	B		
Q.29	C	Q.59	C		
Q.30	B	Q.60	D		