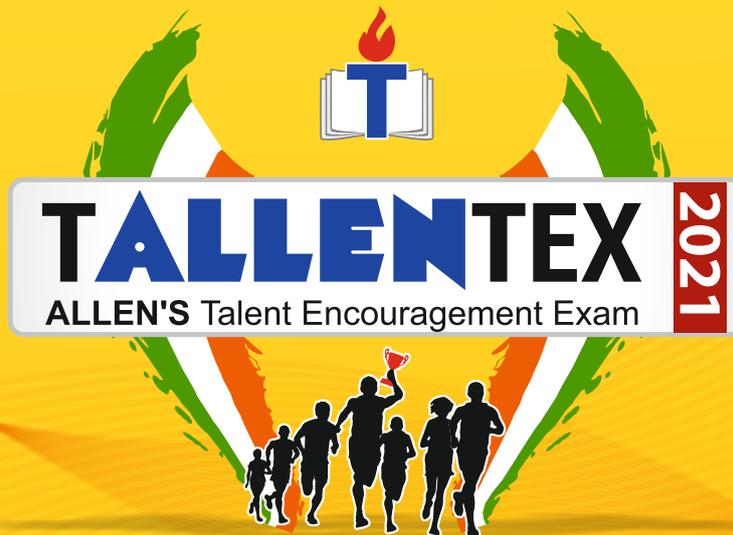


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# **SAMPLE TEST PAPER FOR STAGE - I**

## **CLASS X**

**"TALLENTEX COORDINATION CELL"**

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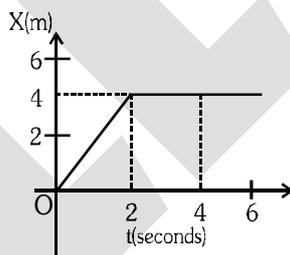
**PART-1**

**SECTION - A : PHYSICS**

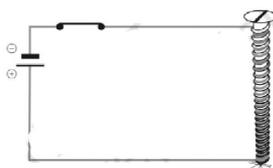
**OBJECTIVE**

- The structure in the human ear that is responsible for converting sound energy into electrical energy is the:  
(1) auditory nerve      (2) eardrum      (3) cochlea      (4) middle ear
- What will be the resistance of a lamp, rated for 220V-500W and connected across a 110 volt supply ?  
(1) 96.8  $\Omega$       (2) 0.44  $\Omega$       (3) 24.2  $\Omega$       (4) 0.22  $\Omega$
- A ball rolls towards a wall along the floor, rebounds from the wall, and comes back to its original position. Which of the following statements is/are correct about the motion?  
(i) Distance covered by the ball is 0.  
(ii) Displacement of the ball is 0.  
(iii) Average velocity of the ball is 0.  
(1) Only (i)      (2) (i) and (iii)      (3) Only (ii)      (4) (ii) and (iii)

- In the figure given below, the position–time graph of a particle of mass 0.1 kg is shown. The impulse at t=2 sec is –



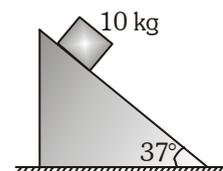
- (1) 0.2 kgms<sup>-1</sup>      (2) -0.2 kgms<sup>-1</sup>      (3) 0.1 kgms<sup>-1</sup>      (4) -0.4 kgms<sup>-1</sup>
- Fig shows, a battery is connected to screw with the help of conducting wire. A magnetic needle is placed near the screw.  
(i) If screw is made of Cu then deviation in needle is x.  
(ii) If screw is made of Al then deviation in needle is y.  
(iii) A new screw is made whose resistance is equal to parallel combination of two screws made of Cu and Al. If this screw is used in circuit then deviation in magnetic needle is z.



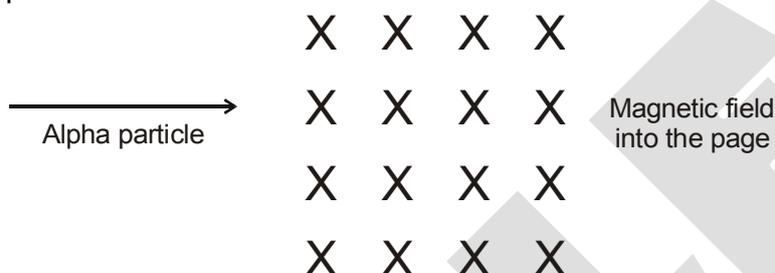
Choose correct option according to above given statements.

- (1)  $x > y > z$       (2)  $x > z > y$       (3)  $z > x > y$       (4)  $x = y = z$

6. Ohm's law is  
 (1) a fundamental law. (2) an empirical law.  
 (3) both fundamental and empirical law. (4) neither fundamental nor empirical law.
7. A block of mass 10 kg is released on a fixed wedge. Take initial velocity of block zero. Then work done by normal reaction (with respect to ground) on block in two second will be: ( $g = 10 \text{ m/s}^2$ ).  
 (1) zero  
 (2) 960 J  
 (3) 1200 J  
 (4) none of these



8. An alpha particle enters into a uniform magnetic field as shown in the figure below. The alpha particle will

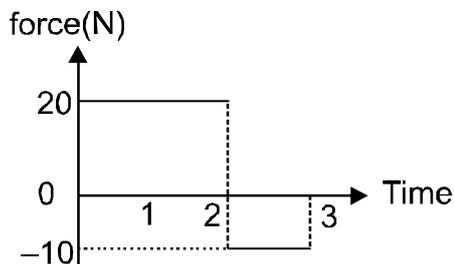


- (1) not deflect when it enters into the magnetic field.  
 (2) deflects out of the page opposite to the direction of magnetic field.  
 (3) deflects towards top of the page as it enters into the magnetic field.  
 (4) deflects towards bottom of the page as it enters into the magnetic field.
9. Mass of a body on earth is 100 kg. Its mass at centre of earth is :  
 (1) 50 kg (2) 25 kg (3) Zero (4) 100 kg
10. Unit of force is  
 (1) kg m/s (2) Kg m-s<sup>2</sup> (3) Kg m/s<sup>2</sup> (4) Kg m-s

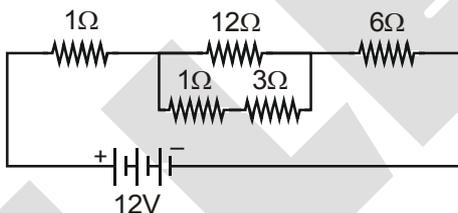
### INTEGER

11. A cylindrical wire of resistance 'R' is pulled to thrice its length keeping the volume constant. It's new resistance will be xR. What is the value of x ?
12. If a bar magnet is cut lengthwise into 3 parts, the total no. of poles will be 2x, then what will be the value of x.
13. A man standing on a cliff claps his hand hears its echo after 1 sec. If sound is reflected from another mountain and velocity of sound in air is 340 m/sec. Find the distance between the man and reflection point in meters .

14. Starting at rest, a 5 kg object is acted upon by only one force as indicated in figure. the total work done by the force is  $10 \times n$  J .Find the value of n.



15. A cat runs 200 m away from a wall in a straight line in 12 sec. and then runs halfway back in two-third the time it took during forward motion. Calculate its average speed in m/s.
16. The current flowing through the  $3\Omega$  resistor in the electric circuit shown below is  $3 \times Z \times 10^{-2}$  A. The value of Z is



17. A player caught a cricket ball of mass 200g which came to his hand with a speed of 20m/s. If the ball was stopped in 0.1s, the force exerted by ball on the hands of player is:
18. A bar magnet is cut into 10 equal pieces. The number of poles each piece is having is given by  $2^x$ . Find 'x'.
19. The gravitational force between the two objects is 4 N. Now if masses of both objects are halved without changing distance between them, then the new force of gravitation between the two is ..... N ?
20. One metre length of wire carries a constant current. The wire is bent to form a circular loop. The magnetic field at the centre of this loop is B. The same is now bent to form a circular loop of smaller radius to have four turns in the loop. The magnetic field at the centre of this new loop is nB. Find 'n'.

**SECTION-B : CHEMISTRY  
 OBJECTIVE**

21. Which of the following is having mass 64g?  
 (1)  $2\text{O}_2$                       (2)  $\text{SO}_2$                       (3)  $4\text{O}$                       (4) All of these
22. Arrange the following in the order of isobar, metals, isotopes, non-metals and noble gases.  
 (A)  ${}_z\text{A}^x, {}_{z+3}\text{B}^x$               (B)  ${}_2\text{X}^4, {}_{18}\text{Y}^{40}$               (C)  ${}_z\text{A}^{x+4}, {}_z\text{A}^x$   
 (D)  ${}_8\text{X}^{16}, {}_{15}\text{Y}^{31}$               (E)  ${}_{11}\text{A}^{23}, {}_{19}\text{Y}^{39}$   
 (1) ABDEC                      (2) CDEAB                      (3) BDACE                      (4) AECDB
23. The followings are the ions obtained by the dissociation of different salts, Identify the one that is not possible.  
 (1) Sodium potassium sulphate  $\longrightarrow \text{Na}^+, \text{K}^+, \text{SO}_4^{2-}$   
 (2) Bleaching powder  $\longrightarrow \text{Ca}^{2+}, \text{Cl}^-, \text{OCl}^-$   
 (3) Potash alum  $\longrightarrow \text{K}^+, \text{Al}^{3+}, \text{SO}_4^{2-}$   
 (4) Sodium oxalate  $\longrightarrow \text{Na}^+, \text{CO}_3^{2-}, \text{CO}^-$
24. What will be the product of this reaction \_\_\_\_\_  
 $\text{Zn} + 2\text{NaOH} \longrightarrow$   
 (1)  $\text{Zn}(\text{OH})_2 + \text{H}_2$                       (2)  $\text{Na}_2\text{ZnO}_2 + \text{H}_2$   
 (3)  $\text{Zn}(\text{OH})_2 + \text{Na}_2$                       (4)  $\text{Na}_2\text{ZnO}_2 + \text{Na}_2\text{O}$
25. A water insoluble substance 'X' on reacting with dilute  $\text{H}_2\text{SO}_4$  released a colourless & Odourless gas 'Y'. On bubbling the gas through lime water it initially became milky due to the formation of 'Z' and the milkiness disappeared when the gas pass in excess & form 'R'. X, Y, Z & R are respectively –  
 (1)  $\text{CaCO}_3, \text{H}_2\text{CO}_3, \text{CO}_2, \text{Ca}(\text{HCO}_3)_2$   
 (2)  $\text{CaO}, \text{CaCO}_3, \text{CO}_2(\text{HCO}_3)_2$   
 (3)  $\text{CaCO}_3, \text{CO}_2, \text{Ca}(\text{HCO}_3)_2, \text{Ca}(\text{OH})_2$   
 (4)  $\text{CaCO}_3, \text{CO}_2, \text{CaCO}_3, \text{Ca}(\text{HCO}_3)_2$
26. A gas produced in Chlor-alkali process is passed through dry slaked lime to produced a compound. This compound is represented as:  
 (1)  $\text{CaH}_2$                       (2)  $\text{Ca}^{2+}\text{Cl}^-(\text{OCl}^-)$   
 (3)  $\text{Ca}^{2+}\text{O}^{2-}(\text{Cl}_2)$                       (4)  $\text{Ca}^{2+}(\text{H}^-)(\text{OH}^-)$

27. Which of the following are exothermic processes  
 (i) Mixing of water with sulphuric acid  
 (ii) Decomposition of lime stone.  
 (iii) Condensation of water vapour  
 (iv) Sublimation of naphthaline crystals  
 (1) i and ii                      (2) ii and iii                      (3) i and iv                      (4) i and iii
28. Two elements X and Y have atomic weights of 14 and 16 respectively. They form a series of compounds A, B, C, D and E in which for the same amount of element X, Y is present in the ratio 1 : 2 : 3 : 4 : 5. If the compound A has 28 parts by weight of X and 16 parts by weight of Y, then the compound of E will have 28 parts by weight of X and-  
 (1) 32 parts by weight of Y                      (2) 48 parts by weight of Y  
 (3) 64 parts by weight of Y                      (4) 80 parts by weight of Y
29. The green coating on copper metal is generally cleaned with tamarind juice. It is because:  
 (1) Metal present in tamarind juice cause copper metal displacement  
 (2) It reacts with acidic  $\text{CO}_2$  of metal carbonate  
 (3) It reacts with basic metal oxide layer on the surface  
 (4) It reacts with basic metal carbonate layer on the surface.
30.  $\text{Mg}^{+2}$  and  $\text{F}^-$  ions differ in which of the following fundamental particles?  
 (1) Electrons, protons and neutrons                      (2) Protons and neutrons  
 (3) Only electrons                      (4) Electrons and protons

**INTEGER**

31. How many acids are dibasic among the following  
 (i) HCl                      (ii)  $\text{H}_2\text{SO}_4$                       (iii)  $\text{H}_3\text{PO}_4$                       (iv)  $\text{H}_2\text{CO}_3$   
 (v)  $\text{H}_3\text{PO}_3$                       (vi) HCOOH
32. Identify the number of statements which are incorrect :  
 (i) 24 g of ozone contains 2 moles of ozone.  
 (ii) 1.7 f of ammonia contains  $6.022 \times 10^{20}$  molecules.  
 (iii) 320 g of NaOH contains  $48.17 \times 10^{23}$  molecules.  
 (iv) 3 molecules of magnesium bicarbonate contain 3 atoms and magnesium, 6 atoms of hydrogen, 6 atoms of carbon and 6 atoms of oxygen.  
 (v) Ratio of mass of each atom in aluminium sulphite is 9 : 16 : 24.  
 (vi) 1 mole of water contains  $12.044 \times 10^{23}$  total number of electrons and protons.

33. How many of the following statements are correct?
- (i) Plum Pudding model was given by scientist Dalton.
  - (ii) Name electron was given by scientist J. J. Thomson.
  - (iii) Neutrons were discovered by Chadwick.
  - (iv) Alpha particle is 2 times heavier than one proton.
  - (v) Rutherford gave concept of stationary orbit.
  - (vi) Isotopes have same physical properties and different chemical properties.
34. How many of the following can behave as only basic oxide:
- (i)  $\text{Na}_2\text{O}$                       (ii)  $\text{MgO}$                       (iii)  $\text{Al}_2\text{O}_3$                       (iv)  $\text{K}_2\text{O}$
  - (v)  $\text{ZnO}$                               (vi)  $\text{BaO}$                       (vii)  $\text{Fe}_2\text{O}_3$                       (viii)  $\text{MnO}$
35. Acetic acid contains four hydrogen atoms, so its basicity is.
36. In the equation  
$$\text{Na}_2\text{CO}_3 + x\text{HCl} \longrightarrow 2\text{NaCl} + \text{CO}_2 + \text{H}_2\text{O}$$
the value of x is
37. What would be the valency of an element whose atomic number is 16.
38. In the formula of ammonium sulphate total number of atoms are –
39. Identify no of incorrect chemical formula among the following:  
 $\text{NaO}$ ,  $\text{KOH}$ ,  $\text{H}_2\text{O}_2$ ,  $\text{CaP}$ ,  $\text{AlN}$ ,  $\text{LiClO}_4$ ,  $\text{Na}_2\text{ZnO}_3$ ,  $\text{ZnHCO}_3$ ,  $\text{HNO}_2$ ,  $\text{CuI}$
40. An ion  $\text{Y}^{3-}$  contains 10 electrons and 7 neutrons. What will be the atomic number of element Y

**SECTION-C : BIOLOGY****OBJECTIVE**

41. The phenomenon of increase in concentration of non-biodegradable organic compounds with each trophic level in a food chain is called
- (1) Biological evolution    (2) Bioenlargement
  - (3) Biological fixation    (4) Biomagnification.
42. BCG vaccine is used to develop immunity against.
- (1) Jaundice                      (2) Polio                      (3) Influenza                      (4) Tuberculosis
43. The process which is involved in removal of urea from human body, is–
- (1) Respiration                      (2) Circulation                      (3) Egestion                      (4) Excretion

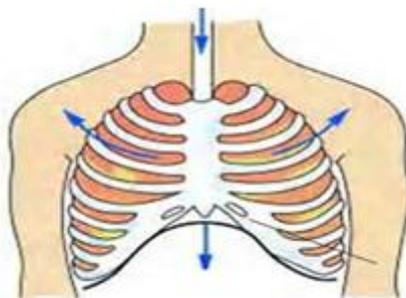
44. When a plant is girdled (ringed)  
 (1) the root and shoot die at the same time  
 (2) the shoot dies first  
 (3) the root dies first  
 (4) neither root nor shoot will die
45. What is similar between pepsin and amylase—  
 (1) Both digest protein (2) Both digest carbohydrate  
 (3) Both are structurally proteins (4) Both digest fat
46. Radial symmetry is found in—  
 (1) Fishes (2) Coelenterates (3) Flatworms (4) Round worms
47. The correct pathway of blood in circulatory system is  
 (1) Atria - ventricle - arteries - veins (2) Ventricles - atria - veins - arteries  
 (3) Ventricles - veins - arteries - atria (4) Veins - ventricles - atria - arteries
48. The correct sequence of anaerobic reactions in yeast is  
 (1) Glucose  $\xrightarrow{\text{Cytoplasm}}$  Pyruvate  $\xrightarrow{\text{Mitochondria}}$  Ethanol + CO<sub>2</sub>  
 (2) Glucose  $\xrightarrow{\text{Cytoplasm}}$  Pyruvate  $\xrightarrow{\text{Cytoplasm}}$  Lactic acid  
 (3) Glucose  $\xrightarrow{\text{Cytoplasm}}$  Pyruvate  $\xrightarrow{\text{Mitochondria}}$  Lactic acid  
 (4) Glucose  $\xrightarrow{\text{Cytoplasm}}$  Pyruvate  $\xrightarrow{\text{Cytoplasm}}$  Ethanol + CO<sub>2</sub>
49. Which of the following animal has proportionally longer loop of Henle?  
 (1) Shark (2) Whale (3) Human (4) Camel
50. Slow respiring plants or plant tissues are  
 (1) Promeristems  
 (2) Cambium  
 (3) Leaf primordia and young plant  
 (4) Adult plants and matured tissues

### INTEGER

51. How many of the following diseases are caused by bacteria?  
 Anthrax, Chickenpox, Influenza, Tuberculosis, Covid19, Amoebiasis, Giardiasis,  
 Chikenguniya, Tetanus, Plague, Leprosy, Whooping cough, Diphtheria, Kala azar, Filariasis,  
 Hepatitis A, Rheumatoid Arthritis, Cancer, Polio
52. How many animals from the following list are Ureotelic ?  
 Shark, Tadpole of frog, Frog, Insects, Amoeba, Tuna, snakes, Dog

53. How many elements of phloem are living?  
Sieve tube , companion cell, phloem parenchyma, phloem sclerenchyma
54. Respiration differs from the process of combustion in the fact that  
(i) All the energy stored in glucose is released at once due to combustion  
(ii) All energy stored in glucose is gradually released due to combustion  
(iii) A part of energy is released as heat in respiration.  
(iv) Combustion occurs at a high temperature.  
How many of the above statements are correct?
55. Read the following statements regarding nitrogen fixation.  
(i) Rhizobium bacteria are symbiotic bacteria help in  $N_2$  fixation  
(ii) Rizobium bacteria live in root nodules of legume plant.  
(iii) Azotobacter also lives in root nodules.  
(iv) Denitrifying bacteria help in breaking nitrates into free nitrogen.  
How many of statemnts are correct?
56. Count the animals not having true coelom—  
(i) Hydra                      (ii) Ascaris                      (iii) Sea-cucumber      (iv) Spongilla  
(v) Tapeworm                      (vi) Earthworm
57. How many statements are incorrect among following—  
(i) Algae are member of thallophyta.  
(ii) Bryophytes are amphibians of plant kingdom.  
(iii) First terrestrial plant group is Angiosperm.  
(iv) Gymnosperms have naked seeds.  
(v) Reproductive organs of angiosperm are flowers.  
(vi) Pteridophytes are seedless
58. How many statements are correct regarding loop of henle ?  
a. the descending loop of Henle is impermeable to water  
b. the ascending limb of loop of Henle is permeable to water  
c. the descending limb of loop of Henle is permeable to electrolyte  
d. the ascending limb of loop of Henle is impermeable to water  
e. loop of Henle is v shape.  
f. both limbs are permeable to water and electrolytes.

59. How many number of statements are given correct by students for below breathing process?



Students-1: Inhalation process

Student-2 : Passive process

Student-3 : Relaxation of diaphragm

Student-4 : Contraction of external intercostals muscle

Students-5 : Decreases the thoracic cavity size

Students-6 : Decreases the pressure

Students-7 : Intake of gases in lungs

Students-8 : Ribs moves upward & outer ward

60. How many of the following enzymes act in alkaline pH–

(i) Pepsin

(ii) Ptyalin

(iii) Trypsin

(iv) Pancreatic amylase

(v) Lipase

(vi) Rennin

### SECTION-D : MATHEMATICS

#### OBJECTIVE

61. Straight line  $3x + 4y - 12 = 0$  will pass through the following quadrants

(1) I, II, III

(2) IV, I, II

(3) II, III, IV

(4) I, IV, III

62. The largest number that will divide 398, 436 and 542 leaving remainder 7, 11 and 15 respectively is :

(1) 11

(2) 17

(3) 24

(4) 45

63. Every line segment has one and only one mid-point

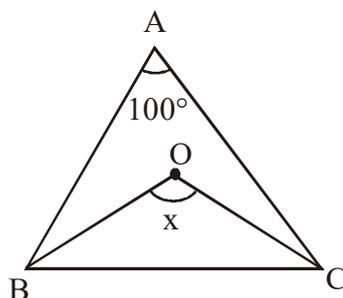
(1) True

(2) False

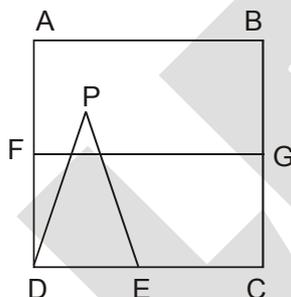
(3) un predictable

(4) none

64. In the given figure the angle bisector of  $\angle B$  and  $\angle C$  are BO and CO respectively. What is the value of  $x$ ?

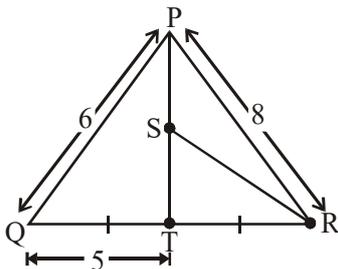


- (1)  $120^\circ$                       (2)  $130^\circ$                       (3)  $140^\circ$                       (4)  $150^\circ$
65. The area of the square ABCD is 64. Let E, F and G be mid points of DC, AD and BC, respectively. If P is any point inside the rectangle ABGF and if X is the area of the triangle DPE, then which one of the following is necessarily true ?



- (1)  $8 < X < 16$                       (2)  $8 < X < 32$                       (3)  $16 < X < 32$                       (4)  $16 < X < 64$
66. If p and q are the zeroes of the polynomial  $x^2 - 12x + 20$ . Find the value of  $p^3 + q^3$  :  
 (1) 84                      (2) 240                      (3) 1008                      (4) 406
67.  $\sin 2A = 2 \sin A$  is true when  $A =$ ?  
 (1)  $0^\circ$                       (2)  $30^\circ$                       (3)  $45^\circ$                       (4)  $60^\circ$
68. Two circles of equal radius of  $2\sqrt{3}$  intersect each other in such a way that both pass through center of each other. The length of common chord is  
 (1) 8                      (2) 6                      (3) 4                      (4) 3
69. Which of these numbers cannot be a probability?  
 (1) 1.001                      (2) 0                      (3) 1                      (4) 20%
70. If the sides of triangle are in ratio  $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$ , the perimeter is 52cm, then the length of smallest side is  
 (1) 12cm                      (2) 11cm                      (3) 8cm                      (4) None of these

71. In a given figure,  $\Delta PQR$  S is the mid-point of median  $PT$ . Area of triangle  $RST$  is equal to



- (1) 24 sq. unit      (2) 12 sq. unit      (3) 6 sq. unit      (4) 9 sq. unit

72. O is the centre of a circle of radius 15 cm. M is a point at a distance of 5 cm from O. AMB is any chord of the circle passing through M then the value of  $AM \times MB$  is

- (1) 100      (2) 50      (3) 150      (4) 200

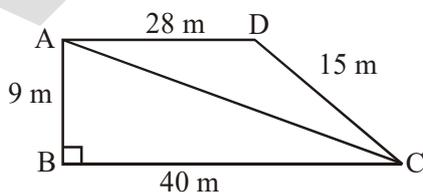
73. The steps from solids to points are

- (1) Solids - Surfaces - Lines - Points      (2) Solids - Lines - Surfaces - Points  
(3) Lines - Points - Surfaces - Points      (4) Lines - Surfaces - Points - Solids

74. A box contain number chits from 1 to 50. A person randomly picked 1 chit, find the probability of number should be divisible by 3 but not divisible by 5.

- (1)  $\frac{13}{50}$       (2)  $\frac{23}{50}$       (3)  $\frac{10}{50}$       (4)  $\frac{1}{5}$

75. In below figure, area of traingle ADC is 'p'. The value of  $\sqrt{\frac{p}{140}}$  (in m) is

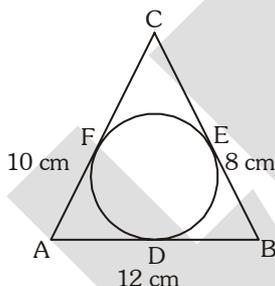


- (1) 0.3      (2) Between 0.4 to 0.8      (3) 0.03      (4) More than 0.9

76. A cube whose edge is 10 cm long, has circles on each of its faces painted blue. What is the total area of the unpainted surface of the cube, if the circles are of the largest possible areas ? (Take  $\pi = 3.14$ )

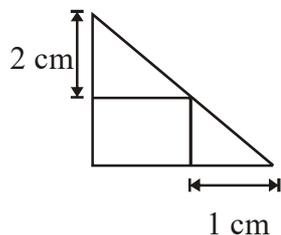
- (1) 129 cm<sup>2</sup>      (2) 300 cm<sup>2</sup>      (3) 429 cm<sup>2</sup>      (4) 450 cm<sup>2</sup>

77. Find the remainder, when  $x^3 - mx^2 - 3m$  is divided  $(x - m)$  ?  
(1)  $m$  (2)  $-m$  (3)  $3m$  (4)  $-3m$
78. If  $\cos 9A = \sin A$  and  $A < 10^\circ$  then value of  $\tan 5A$  is  
(1)  $0$  (2)  $1$  (3)  $\frac{1}{\sqrt{3}}$  (4)  $\sqrt{3}$
79. The mean of 20 observations is 12.5. By error, one observation was noted as - 15 instead of 15. Then the correct mean is:  
(1) 11.75 (2) 11 (3) 14 (4) None of these
80. A circle is inscribed in a  $\triangle ABC$  having sides 8 cm, 10 cm and 12 cm as shown in figure. Find AD.



- (1) 5 cm (2) 4 cm (3) 6 cm (4) 7 cm
81. The mean of first 7 natural numbers is :  
(1) 3 (2) 4 (3) 5 (4) 6
82. The length, breadth and height of a room are 8cm, 12cm and 7cm respectively. Find the area of four walls of the room ?  
(1)  $140 \text{ cm}^2$  (2)  $280 \text{ cm}^2$  (3)  $480 \text{ cm}^2$  (4)  $120 \text{ cm}^2$
83. When you reverse the digits of the number 13, the number increases by 18. How many other two digit numbers increase by 18 when their digits are reversed ?  
(1) 7 (2) 5 (3) 6 (4) 8
84. If  $3x + 4y : x + 2y = 9 : 4$  then  $3x + 5y : 3x - y$  is equal to :  
(1)  $4 : 1$  (2)  $1 : 4$  (3)  $7 : 1$  (4)  $1 : 7$

85. The figure shows a right triangle and a square inside it.

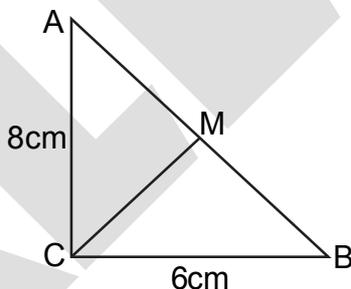


What is the length of a side of the square?

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

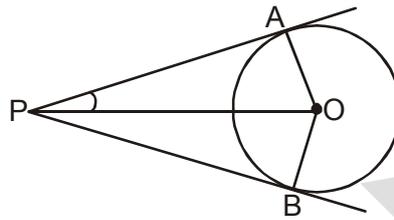
**INTEGER**

86. If  $x^3 - 4x^2 + 19 = 6(x - 1)$ , then the value of  $x^2 + \frac{1}{x-4}$  is
87. If  $\text{HCF}(16, y) = 8$  and  $\text{LCM}(16, y) = 48$  then the number of factors of value  $y$  is :
88. In figure  $\triangle ABC$  is given, right angled at  $C$ ,  $M$  is mid-point of  $AB$  then  $CM$  is

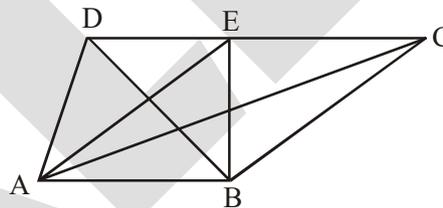


89. If  $\frac{x}{3} + \frac{y}{2} = 1$  and  $\frac{x}{6} - \frac{y}{k} = \frac{1}{2}$  having infinite common solution then  $k$  has value  $-\lambda$ , find  $\lambda^2 - 16$
90. The number of line segments determined by 3 distinct collinear points  $P, Q$  and  $R$  is :
91. There are 'p' number of isosceles triangle with integer sides, whose sum of the equal sides is 14. There is another triangle  $ABC$  with medians  $AD$  and  $BE$  which are perpendicular to each other having lengths 15 cm and 18cm, respectively. The area of this triangle  $ABC$  (in sq. cm) is 'q'. The value of  $\frac{q}{p+3}$  is :

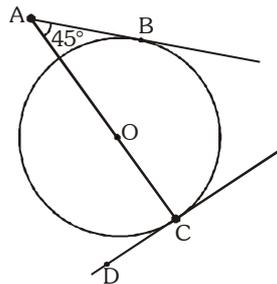
92. If  $\alpha$  and  $\beta$  are the zeroes of the polynomial  $x^2 - 3x + 2$ , then  $\alpha^2 + \beta^2 + \alpha\beta$  is equal to
93. A tree is broken by the wind. The top struck the ground at an angle of  $30^\circ$  and at a distance of 30 m from the root. Then the whole height of the tree is  $p\sqrt{q}$  m find q :
94. In the given figure PA and PB are tangents to the circle with centre O. If  $\angle APO$  is  $40^\circ$ , then the measure of  $\angle AOB$  in degrees is



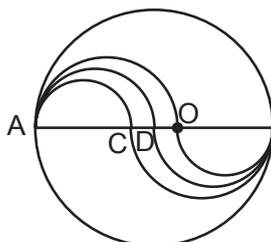
95. Find the total events to throw three dice simultaneously ?
96. The sides of a triangle are in the ratio 3 : 4 : 5 and its perimeter is 60 cm. Find the area of the triangle :
97. ABCD is a trapezium with  $CD = 12$  cm and  $AB = 6$  cm,  $BE = 8$  cm,  $AE = 10$  cm. The sum of the area of  $(\triangle ABC + \triangle ABE + \triangle ABD)$  is equal to (in  $\text{cm}^2$ )



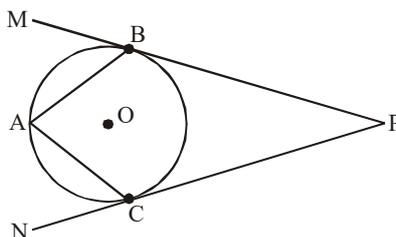
98. If the mean and median of a set of numbers are 8.7 and 8.8 respectively then find the mode of the set of numbers.
99. In the fig. given below O is the centre of the circle. Line AB intersects the circle only at point B, and line DC intersects the circle only at point C. If the circle has a radius of 2 cm. then AC is:



100. If  $1 + \sin^2 A = 3 \sin A \cos A$ , then sum of all possible value of  $\tan A$  is
101. The mean of 10 observation was 120. It was detected on rechecking that the value of 135 was wrongly copied as 35 for computation of mean. Find the correct mean.
102. In a circle of radius 6 cm semi circles are drawn inside the circle as shown in the figure. Where AB is diameter with center as O. All circles having integral radii (use  $\pi = 3.141$ ). Area of shaded region is



103. The mean of the following data is :  
180, 100, 110, 150, 130, 140, 110, 120, 140, 150
104. A piece of paper is in shape of a semicircular region of radius 25 cm. it is rolled to form a right circular cone. Find the slant height of the cone ? (in cms)
105. The length of three sides of a triangle are 20 cm, 16 cm and 12 cm. The area of triangle is:
106. Find the radius (in cm) of the largest right circular cone that can be cut from a cube of edge 814 cm ?
107. The remainder when polynomial  $3x^3 - 2x^2 + 5x - 7$  is divided by  $(x - 2)$  is
108. The value of  $4(\sin^2 30^\circ + \cos^2 60^\circ)$  is
109. The average of 11 numbers is 16. If the average of first 6 numbers is 18 and that of last 6 numbers is 12, then the 6<sup>th</sup> number is
110. In a given figure PM and PN are tangent to the circle with center O at B and C respectively. If  $\angle MBA = 70^\circ$  and  $\angle ACN = 80^\circ$  and  $\angle BPC = x^\circ$ , then the value of x is



**PART-2**  
**MENTAL ABILITY**  
**OBJECTIVE**

- 111.** Pointing to a photograph, a man said, "I have no brother or sister but that man's father is my father's son." Whose photograph was it ?  
(1) His own                      (2) His son's                      (3) His father's                      (4) His nephew's
- 112.** In a lake, there are 10 steps labelled using alphabets from A to J. Starting from step A, every minute a frog jumps to the 4th step from where it started - that is from the step A it would go to the step E and from E it would go to the step I and from I it would go to C etc. Where would the frog be at the 60th minute if it starts at the step A ?  
(1) B                                      (2) A                                      (3) H                                      (4) D
- 113.** A contractor will build five houses in a certain town in a street that currently has no houses on it. The contractor will select from seven different models of houses T, U, V, W, X, Y and Z. The town's planning board has placed the following restrictions on the contractor:  
(i) No model can be selected for more than one house. Either model W must be selected or model Z, but both cannot be selected.  
(ii) If model Y is selected, model V must also be selected.  
(iii) If model U is selected, model W cannot be selected.  
Following the above restrictions answer the question given below. If model U is one of the models selected for the street, then which of the following models- must also be selected?  
(1) T                                      (2) W                                      (3) Z                                      (4) U
- 114.** Let Abhi, Brij, Chetan, Deep, Eshan, Farid, Gwala are sitting in a row.  
(i) If Deep is immediate right of Chetan.  
(ii) Eshan and Abhi are neighbours of Farid.  
(iii) Brij is immediate left of Chetan and at 2nd place from left corner and Abhi is at the right most end.  
Then find the position of Eshan:  
(1) 5th from right                      (2) 5th from left                      (3) 2nd from right                      (4) 2nd from left
- 115.** On any distant planet their direction system is different from ours. Our NE direction is East direction for them, our North direction is NE direction for them. If our scientist standing on that planet reports that he/she is looking towards west direction. In what direction scientist is looking with respect to direction system followed on earth.  
(1) West                                      (2) North-West                      (3) South-West                      (4) East
- 116.** In a joint family, there are father, mother, 3 married sons and one unmarried daughter. Of the sons, two have 2 daughters each, and one has a son. How many female members are there in the family ?  
(1) 2                                      (2) 3                                      (3) 6                                      (4) 9

117. Find the missing character.

B	B	E
B	E	F
B	H	?

- (1) E                      (2) I                      (3) G                      (4) N

118. If + means  $\div$ , - means  $\times$ ,  $\div$  means + and  $\times$  means -, then  $36 \times 8 + 4 \div 6 + 2 - 3 = ?$

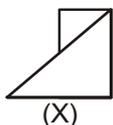
- (1) 25                      (2) 18                      (3) 43                      (4)  $6\frac{1}{2}$

119. Determine the number of pentagons in the following figure :



- (1) 5                      (2) 6                      (3) 8                      (4) 10

120. Find the figure in which the problem figure is hidden.



- (1)      (2)      (3)      (4)

121. Read the conclusion and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.

Statements : All men are dogs. All dogs are cats.

Conclusions : I. All men are cats. II. All cats are men.

- (1) if only conclusion I follows;                      (2) if only conclusion II follows;  
(3) if neither conclusion I nor II follows;                      (4) if both conclusions I and II follow.

122. P, Q, R, S, T, V, W and Z are sitting around a circle facing the centre. T is 2nd to the right of R who is 3rd to the right of P. S is 2nd to the left of P and 4th to the right of Q. Z is 3rd to the right of V who is not an immediate neighbour of P.

Who is second to the right of T?

- (1) S                      (2) Z                      (3) P                      (4) R

123. Read the conclusion and then decide which of the given conclusions logically follows from the given statements, disregarding commonly known facts.

**Statements:**

Some guns are bullets.

Some silver are bronze

All metals are guns.

All bronze are metals.

**Conclusions:**

I. Some bullets are bronze

II. Some guns are silver

III. Some metals are silver

IV. Some bullets are silver

(1) Only I follows      (2) Only II and III follow      (3) Only III follows      (4) Only I and II follow

124. Referring to the girl on TV, Pooja said 'She is the sister of the son of the wife of my husband'. How is Pooja related to the girl on TV ?

(1) Sister      (2) Mother      (3) Sister-in-law      (4) Aunt

125. A clock, which loses uniformly is 15 minutes fast at 9 am on 3rd of the December and is 25 minutes less than the correct time at 3 pm on 6th of the same month. At what time it was correct ?

(1) 2 : 15 am on 3rd Dec.      (2) 2 : 15 pm on 4th Dec.  
(3) 2.15 pm on 3rd Dec.      (4) 2.15 am on 4th Dec.

126. Which interchange of signs will make the following equation correct ?

$$(8 - 8) + 8 \times 23 = 46$$

(1)  $\times, +, -$       (2)  $-, \div, +$       (3)  $+, \div, +$       (4)  $+, \div, \times$

127. Read the conclusion and then decide which of the given conclusions logically follows from the given statements, disregarding commonly known facts.

**Statements:** Some Pen are Pencil. All the Pencil are Copy.

**Conclusions:**

(i) All the Copy are Pencil.

(ii) Some Pen are Copy.

(1) Only (i) conclusion follows      (2) Only (ii) conclusion follows  
(3) Neither (i) nor (ii) follows      (4) Both (i) and (ii) follow

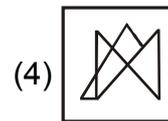
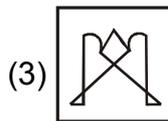
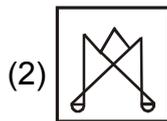
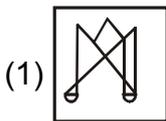
128. In a queue Ram is 9th from the back. Shayam's place is 8th from the front. Mohan is standing in the middle of the two. What could be the minimum number of boys standing in the queue?

(1) 8      (2) 10      (3) 14      (4) 18

129. Find the figure in which the problem figure is hidden.



(X)



130. A 12 dial clock has its minute hand defective. Whenever it touches dial 12, it immediately falls down to 6 instead of running smoothly (the hour hand remains unaffected during that fall). It was set right at 12 'O' clock in the noon.

What was the actual time when the minute hand of the clock touched dial 9 for the 5th time?

(1) 2 : 15

(2) 3 : 00

(3) 5 : 15

(4) 6 : 45

131. Q's mother is sister of P and daughter of M. S is daughter of P and sister of T. How is Q related to S ?

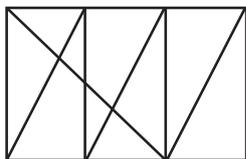
(1) Sister

(2) Cousin

(3) Brother

(4) Data insufficient

132. How many triangles are there in the following figure ?



(1) 17

(2) 18

(3) 19

(4) 20

133. 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?

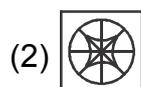
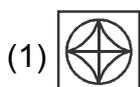
(1) East

(2) West

(3) South

(4) Data is inadequate

134. Find the option which contains :



135. Find the missing term

35	17	24
15	76	16
26	?	36

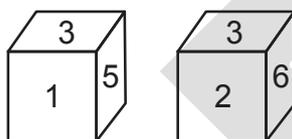
- (1) 13                      (2) 14                      (3) 15                      (4) 16

**INTEGER**

136. If FOX is coded as 135 what will be the code number for BOX ?

137. If 1<sup>st</sup> day of leap year is Thursday then, difference of odd days till 30<sup>th</sup> June?

138. Two positions of a dice are shown below. Which number will appear on the face opposite to the face with the number 5?

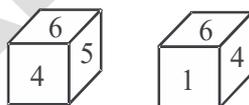


139. Which one will replace the question mark ?

DF	96	30	OQ
SG	90	78	NP
TX	102	?	KW

140. If a, b, c, d,.....j is written as 0, 1, 2, 3,....., 9, then find  $c \times e - (d - i) \times h$ .

141. Two different orientation a dice are shown below.



When number 5 is on top, what number will be at bottom say ( $\alpha$ ). Then fill  $(1000 - \alpha)$  as answer

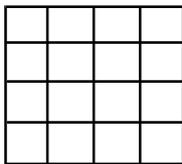
142. In a row of 25 boys, when Raju was shifted by five places towards the right, he became 15th from left end, what was his earlier position from right end of the row ?

143. On 8th Feb, 2005 it was Tuesday. What was the day of the week on 8th Feb, 2004?

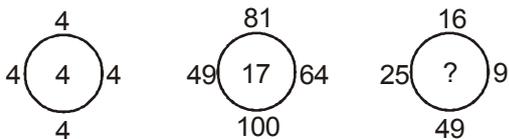
While answering the question please use the following

- Monday =  $1^3$                       Tuesday =  $2^3$   
 Wednesday =  $3^3$                       Thursday =  $4^3$   
 Friday =  $5^3$                       Saturday =  $6^3$   
 Sunday =  $7^3$

144. Count the number of squares in the following figure ?



145. Find the missing number in the given figure :



146. A and B start walking in opposite directions. A walked 5 km, B 6 km. Thereafter both turned to their right and walked 2 km. They turned to right again and walked 3 km, again turned to right and walked 2 km. How much distant apart are they from each other (in Km)?

147. Rohan walks 5 km towards North. Then he turns towards right and walks 3 km. Then he again turns to his right and moves 5 km. How far in kms is he from the starting point?

148. How many degree does the minutes hand covers in the same time, in which the hour hand covers  $20^\circ$  ?

149. The position of how many digits in the number 2451479638 will remain same when the digits of the number are arranged in ascending order separately ?

150. What replaces "?" in the below figure?

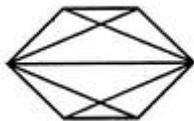
65	90
?	117

151. Sumit walk 25m toward east then turn left and walk 25m, then turn right and walk 25 m, again walk 25m after turn Right, again walk 50m after turn left. Now Sumit is how far from starting point?

152. Calculate the number of leap year from 1601 to 1900?

153. A usual dice is thrown four times. Number appearing on top face is 4, 3, 1 and 5 respectively. What is the sum of numbers appearing on the face touching the ground?

154. Find the number of quadrilaterals in the given figure.



155. In a certain code language, FRIEND is coded as 28, PAL is coded as 27. What is the code for CLASSMATE?

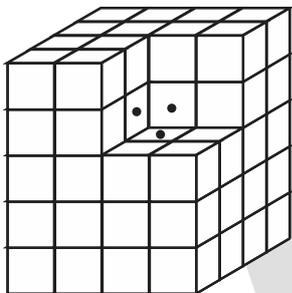
156. How many days are there from Independence Day of the year 2020 to its immediate next year Republic Day?

157. The reflex angle between the hour hand and minute hand of a clock at 5 : 20 a.m. is -

158. If 22nd February 2007 is Thursday, then first Friday of June 2007 falls on which date?

159. Students line up in a queue in which Ashish stands fifteenth from the left and Sachin is seventh from the right. If they interchange their places, Sachin would be fifteenth from the right. How many students are there in the queue ?

160. Some equal cubes are arranged in the form of a solid block shown in the given figure. All the visible surfaces of the block (except the bottom) are then painted. How many cubes do not have any of the faces painted ?



**ANSWER KEY**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
3	1	4	2	3	2	1	3	4	3
<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>
9	3	170	9	15	30	40	1	1	16
<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>
4	4	4	2	4	2	4	4	4	2
<b>31</b>	<b>32</b>	<b>33</b>	<b>34</b>	<b>35</b>	<b>36</b>	<b>37</b>	<b>38</b>	<b>39</b>	<b>40</b>
3	4	1	5	1	2	2	15	4	7
<b>41</b>	<b>42</b>	<b>43</b>	<b>44</b>	<b>45</b>	<b>46</b>	<b>47</b>	<b>48</b>	<b>49</b>	<b>50</b>
4	4	4	3	3	2	1	4	4	4
<b>51</b>	<b>52</b>	<b>53</b>	<b>54</b>	<b>55</b>	<b>56</b>	<b>57</b>	<b>58</b>	<b>59</b>	<b>60</b>
6	3	3	3	3	4	1	1	5	3
<b>61</b>	<b>62</b>	<b>63</b>	<b>64</b>	<b>65</b>	<b>66</b>	<b>67</b>	<b>68</b>	<b>69</b>	<b>70</b>
2	2	1	3	1	3	1	2	1	1
<b>71</b>	<b>72</b>	<b>73</b>	<b>74</b>	<b>75</b>	<b>76</b>	<b>77</b>	<b>78</b>	<b>79</b>	<b>80</b>
3	4	1	1	4	1	4	2	3	4
<b>81</b>	<b>82</b>	<b>83</b>	<b>84</b>	<b>85</b>	<b>86</b>	<b>87</b>	<b>88</b>	<b>89</b>	<b>90</b>
2	2	3	3	2	6	8	5	0	3
<b>91</b>	<b>92</b>	<b>93</b>	<b>94</b>	<b>95</b>	<b>96</b>	<b>97</b>	<b>98</b>	<b>99</b>	<b>100</b>
11.25	7	3	100	216	150	72	9	4.82	1.5
<b>101</b>	<b>102</b>	<b>103</b>	<b>104</b>	<b>105</b>	<b>106</b>	<b>107</b>	<b>108</b>	<b>109</b>	<b>110</b>
130	37.692	133	25	96	407	19	2	4	120
<b>111</b>	<b>112</b>	<b>113</b>	<b>114</b>	<b>115</b>	<b>116</b>	<b>117</b>	<b>118</b>	<b>119</b>	<b>120</b>
2	2	3	2	3	4	2	3	4	3
<b>121</b>	<b>122</b>	<b>123</b>	<b>124</b>	<b>125</b>	<b>126</b>	<b>127</b>	<b>128</b>	<b>129</b>	<b>130</b>
1	2	2	2	2	4	2	2	2	1
<b>131</b>	<b>132</b>	<b>133</b>	<b>134</b>	<b>135</b>	<b>136</b>	<b>137</b>	<b>138</b>	<b>139</b>	<b>140</b>
2	3	3	2	2	123	6	6	132	43
<b>141</b>	<b>142</b>	<b>143</b>	<b>144</b>	<b>145</b>	<b>146</b>	<b>147</b>	<b>148</b>	<b>149</b>	<b>150</b>
999	16	343	30	9.5	5	3	240	1	146
<b>151</b>	<b>152</b>	<b>153</b>	<b>154</b>	<b>155</b>	<b>156</b>	<b>157</b>	<b>158</b>	<b>159</b>	<b>160</b>
100	72	15	11	79	165	320	1	29	12