DAV S.C.B. MEDICAL PUBLIC SCHOOL

OMP Square, Chauliaganj, Cuttack

APTITUDE TEST - 2026

Class XI (SCIENCE)

A

MENTAL ABILITY

1. 294 , 180 , 100 , ___ , 18 , 4

(A) 60 (B) 48 (C) 45 (D) 32

2.181, 191, 202, 206, 214, ?

(A) 220 (B) 222 (C) 221 (D) 223

3. X2E , T3I , Q5O , _____ , J11A

(A) M8U (B) O7W (C) O8W (D) M7U

4. NAJ 31 , BEF 28 , RAM 31 , RPA 30 , ?

(A) YAM28 (B) YMA31 (C) NUJ30 (D) YAM31

5.



(A) 25 (B) 26 (C) 23 (D) 27

6. Three of the following four are alike in some manner while one is different. Find out the one which is different

(A) 428 (B) 338 (C) 326 (D) 339

7. Three of the following four are alike in some manner while one is different. Find out the one which is different

(A) BEIL (B) FIOR (C) MOUZ (D) DIUW

8. 225 : 625 :: 130 : 1000 :: 123 : ?

(A) 729 (B) 529 (C) 169 (D) 961

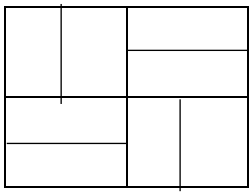
9. JLNP : 8642 :: BCEF :: 7643 :: QOLK :: ?

(A)1367 (B) 2478 (C) 3556 (D) 1378

10.In a certain code if BROAD means 19812 , RAIN means 9157 , then CLOCK means

(A) 68262 (B) 68622 (C) 26826 (D) 37836

11. How many rectangles are there in the following figure ?



(A) 12 (B) 16 (C) 17 (D) 21

12. What number is opposite 3 in the figure shown below? The given two positions are of the same dice whose each surface bears a number among 1, 2, 3, 4, 5 and 6.



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

13. Find the missing number if a certain rule is followed either row-wise or column wise

24	36	54
25	45	63
19	60	?

(A) 49 (B) 54 (C) 60 (D) 81

14. A man walks 2km East . Then he turns right and walks 10km. Then he turns left and walks 4km and finally he turns left and walks 18km . Now he is in which direction and how far from the starting point ?

(A) 10km,N-E (B)10km, S-W (C) 14km,N-E (D) 18km,S-W

15. In the following question which conclusion can be logically derived from the given statements disregarding commonly known facts.

Statement: Only a few blue is purple.

Only a few purple is black.

Only a few black is blue.

Conclusions: I. All black being blue is a possibility.

II. Some purple which are black are also blue.

(A) only I follows (B) only II follows

(C) both I and II follow (D) neither I nor II follow

16. Z , X , S , I , R , R , ?

(A) P (B) H (C) G (D) I

17. If F< G ≤ D = E > H ≥ C then which of the following is definitely true ?

(B) F≤C (B) D≥C (C) G>H (D) E > F

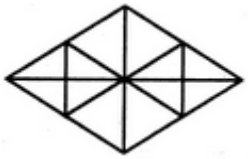
18. If TO + GO = OUT and all the letters represent different digit then what is the possible value of T × G =?

(A) 18 (B) 16 (C) 9 (D) 8

19. If the English alphabet is reversed then find out the letter which is 9^{th} to the left of 5^{th} to the right of K?

(A) G (B) O (C) F (D) N

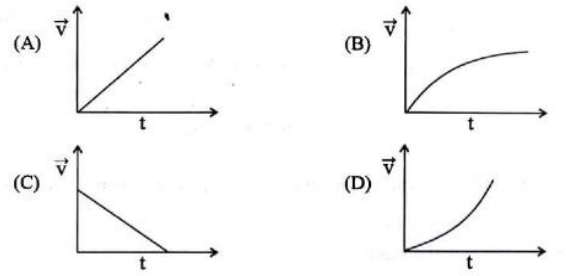
20. Find the number of triangles in the given figure.



(A)16 (B) 22 (C) 28 (D) 32

SCIENCE

21. Which of the following will be the correct nature of velocity vs time graph of a constantly accelerated particle-



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

22. A rocket launched from the earth surface gains its escape velocity 11.2 km/s within 60 sec. during this time net acceleration of the rocket is in the direction –

(A) Towards the Centre of the earth (B) towards North

(C) Vertically upward (D) towards south

23. The mass of moon is 1% of the mass of the earth. The ratio of gravitation pull of the earth on moon and that of moon on earth will be

(A) 1:1 (B) 1:10 (C) 1:100 (D) 2:1

24. The force of attraction between two unit point masses separated by a unit distance is called

(A) Gravitational potential (B) Acceleration due to gravity

(C)Gravitational field (D)Universal gravitational constant

25. An object is put in turn in three liquids having different densities. The object floats with 1/9 , 2/11 and 3/7 parts of its volume outside the liquid surface in liquids of densities d_1, d_2 and d_3 respectively. Which of the following statements is correct ?

(A) $d_1 > d_2 > d_3$ (B) $d_1 > d_2 < d_3$

(C) $d_1 < d_2 > d_3$ (D) $d_1 < d_2 < d_3$

26. An electric motor exerts a force of 40 N on a cable and pulls it by distance of 30m in one minute. The power supplied by the motor (in watt) is

(A) 10 (B) 2 (C) 200 (D) 20

27. When the Kinetic energy of a particle is increased by 300%, the momentum of the body is increased by

(A) 20 % (B) 50 % (C) 100% (D) 200%

28. Note is a sound :

(A) of mixture of several frequencies (B) of mixture of two frequencies

(C) of a single frequency (D) always unpleasant to listen

29. Which of the following mirrors always forms a virtual and erect image?

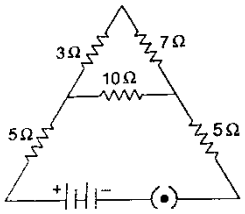
(A) Concave Mirror (B) Convex Mirror
(C) Plane Mirror (D) Parabolic Mirror

30. A person cannot see objects distinctly kept beyond 2m . This defect can be corrected by using a lens of power
(A) + 0.5 D (B) −0.5 D (C) +0.2 D (D) −0.2 D

31. An electric bulb is rated 220V and 100W. when it is operated on 110 V , the power consumed will be
(A) 100 W (B) 75 W (C) 50 W (D) 25 W

32. How many 176 Ω resistors (in parallel) are required to carry 5A on a 220 V line?
(A) 4 (B) 3 (C) 7 D) 8

33. Five resistances are connected in the shape of letter A as shown in the given figure. Find the total resistance of the circuit.



(A) 10 Ω (B) 15 Ω
(C) 5 Ω (D) none of these

34.An element M has two isotopes ${}^{31}_{15}M$ and ${}^{34}_{15}M$ having atomic masses 31.99 u and 34.2 u respectively. The average atomic mass of M is 32.211 u .The percentage of isotope ${}^{34}_{15}M$ is
(A) 5% (B)10% (C)15% (D)20%

35.The outermost orbit of an element M has 2 electrons and that of N has 5 electrons. The formula of the compound of M and N is :
(A) M_3N_2 (B) M_2N_3 (C) M_2N_5 (D)none of these

36.The cation M^{3+} ion has 10 electrons . If the mass number of M is 29 then the number of neutrons in M is :
(A)10 (B)13 (C)16 (D)19

37.Which of the following contain more number of atoms :
(A) 23 g sodium (B) 8g Oxygen
(C) 2 g Hydrogen (D)All have same number of atoms

38.Which of the following is the symbol of sulphur as proposed by Dalton :

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

39.The white washing on the walls give a shiny finish after 2 to 3 days of whitewashing due to following chemical reaction :

(A) $CaO + H_2O \rightarrow Ca(OH)_2$ (B) $CaCO_3 + 2HCl \rightarrow CaCl_2 + CO_2 + H_2O$

(C) $CaCO_3 \xrightarrow{\Delta} CaO + CO_2$ (D) $Ca(OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$

40. Lead nitrate powder on heating in a boiling tube gives brown fumes . The compound formed which gives brown fumes and the type of chemical reaction are :

(A) PbO , Decomposition reaction . (B) PbO , Combination reaction .

(C) NO_2 , Decomposition reaction . (D) NO_2 , Combination reaction.

41.Which of the following statement is not correct :

(A) When fats and oils are reduced , they become rancid .

(B) Corrosion causes the black coating on silver and green coating on copper .

(C) Precipitation reactions produce insoluble salts .

(D)Respiration is considered an exothermic reaction .

42.Which of the following statement is correct for acids:

(A) The stronger acids have higher pH.

(B)Acids react with metals to form salts and water .

(C) Aqueous solution of acids when added to either metal carbonates or metal hydrogen carbonates liberate a gas which turns lime water milky.

(D)Acid solution turn red litmus solution to blue

43. A student dips pH paper in solution 'A' and 'B'. He observes blue and orange colour in 'A' and 'B' respectively. Identify which of the following is correct:–

(A) A is acetic acid, B is sodium carbonate solution

(B) A is sodium carbonate solution, B is acetic acid

(C) A is HCl solution, B is NaOH solution

(D) A is oxalic and, B is Na_2CO_3 solution

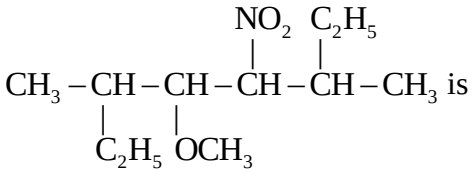
44. Which of the following statement is not correct for baking soda ?

(A) It is an acidic salt .

(B) Its aqueous solution is basic in nature .

(C) It liberates oxygen gas on heating .

(D) It liberates a gas which is used as a fire extinguisher when reacts with dilute acids .

45. The correct IUPAC name of the compound  is

(A)5-Methoxy-3,6-dimethyl-4-nitrooctane

(B) 4-Methoxy-3,6-dimethyl-5-nitrooctane

(C) 4-Methoxy -5-nitro-3,6-dimethyloctane

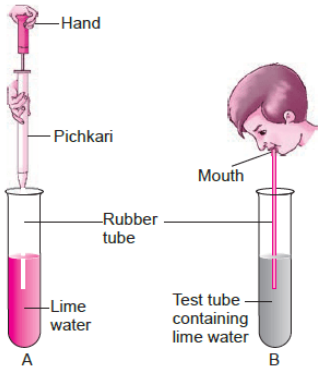
(D) 3,6-Dimethyl-4-methoxy -5-nitrooctane

46. Which of the following compound IUPAC name is ethyl propanoate ?

(A) $CH_3\,COO\,CH_2\,CH_2\,CH_3$ (B) $CH_3\,CH_2\,COO\,CH_2\,CH_3$

(C) $CH_3\,CH_2\,CH_2\,O\,CH_2\,CH_3$ (D) none of these

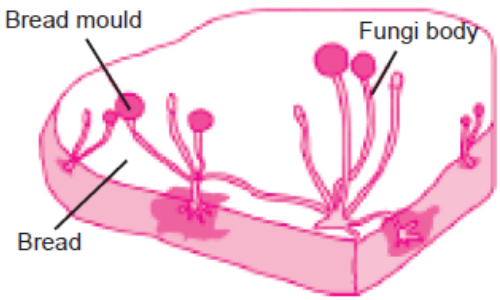
47. A student sets up an experiment to study human respiration using lime water, test tube and a straw. Lime water is colourless in the absence of CO_2 and is milky in its presence. The student fills a freshly prepared limewater in a test tube and blows air through straw into the limewater. It was observed that the solution turns cloudy as shown. What can be evaluated from this observation?



(A) Oxygen is exhaled during respiration.
(B) Water vapours are produced during respiration.
(C) Carbon dioxide is exhaled during respiration.
(D) Glucose is produced during respiration.

48.The image shows the bread moulds on a bread. How these fungi obtain nutrition?

(A) By using nutrients from the bread to prepare their own food.
(B) By allowing other organisms to grow on the bread and then consuming them.
(C) By breaking down the nutrients of bread and then absorbing them.
(D) By eating the bread on which it is growing.



49. The process of breaking down glucose to release energy is called:

(A) Photosynthesis
(B) Respiration
(C) Assimilation
(D) Digestion

50.If salivary amylase is lacking in the saliva, which of the following events in the mouth cavity will be affected?

(A) Proteins breaking down into amino acids
(B) Starch breaking down into sugars
(C) Fats breaking down into fatty acids and glycerol
(D) Absorption of vitamins

51. In a synapse, a chemical signal is transmitted from

(A) Dendritic end of one neuron to axonal end of another neuron
(B) Axon to the cell body of the same neuron
(C) Cell body to the axonal end of the same neuron
(D) Axonal end of one neuron to the dendritic end of another neuron

52. Match List I with List II:

Column I	column II
a. Pons	i. Provides additional space for neurons, regulates posture and balance
b. Hypothalamus	ii.Controls respiration and gastric secretions
c. Medulla	iii.Connects different regions of the brain
d. Cerebellum	iv.Neuro secretory cells

Choose the correct answer from the options given below:

(A) a-i, b-iii, c-ii, d-iv
(B) a-ii, b-i, c-iii, d-iv
(C) a-iii, b-iv, c-ii, d-i
(D) a-iii, b-ii, c-iv, d-i

53.Two pea plants one with round green seeds (RR yy) and another with wrinkled yellow (rr YY) seeds produce F_1 progeny that have round yellow (RrYy) seeds. When F_1 plants are self pollinated, the F_2 progeny will have a new combination of characters. Choose the new combinations from the following:

(i) Round, yellow
(ii) Round, green
(iii) Wrinkled, Yellow
(iv) Wrinkled, green

(A) (i) and (ii) (B) (i) and (iv)
(C) (ii) and (iii) (D) (i) , (ii), (iii) and (iv)

54.Which section of DNA provides information for one protein?

(A) Nucleus (B) Chromosome (C)Trait (D) Gene

55. **Assertion(A):** A geneticist crossed two pea plants and got 50% tall and 50% dwarf in the progeny.

Reason (R) : One plant was heterozygous tall and the other was dwarf.

Choose the correct option

(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true but R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.

56. **Assertion :** The Bowman's capsule and the tubule together make a nephron.
Reason : The function of tubule is to allow the selective reabsorption of substances like glucose, amino acids, urea, salts and water into the blood capillaries.
Choose the correct option
(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true but R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.

57.The decomposers in an ecosystem:
(A) Convert organic material to inorganic forms.
(B) Convert inorganic material to simpler forms.
(C) Convert inorganic material into the organic compound.
(D) Do not break down the organic compound.

58.The manufacturing of Chlorofluorocarbons free refrigerators is mandatory throughout the world. How does this help prevent ozone depletion?
(A) This will help convert oxygen molecules into ozone.
(B) This will help convert the CFCs into ozone molecules.
(C) This will reduce the production of CFCs from oxygen molecules.
(D) This will reduce the release of CFCs that reacts with ozone molecules.

59.A cell has 24 chromosomes in G1 phase. How many DNA molecules will be present in this cell during Metaphase II of meiosis?
(A) 12 (B) 24
(C) 6 (D) 48

60.Different cells have different sizes. Arrange the following cells in an ascending order of their size. Choose the correct option among the following:
(i) Mycoplasma
(ii) Ostrich eggs
(iii) Human RBCs
(iv) Bacteria
(A) (i), (iv), (iii), (ii) (B) (i), (iii), (iv), (ii)
(C) (ii), (i), (iii), (iv) (D) (iii), (ii), (i), (iv)

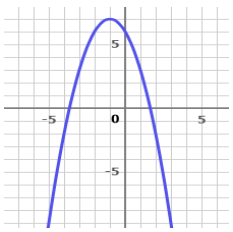
MATHEMATICS

61. If $x > 0, |y| \geq 1$ and $a = \frac{2xy}{y^2+1}$, then the value of $\frac{\sqrt{x+a}-\sqrt{x-a}}{\sqrt{x+a}+\sqrt{x-a}}$ is
(A) $\frac{1}{y}$ (B) $\frac{1}{x}$ (C) $\frac{1}{xy}$ (D) 1

62. The minimum value of $x^2 - 8x + 17,\ x \forall \in R$ is
(A) 1 (B) -1 (C) 17 (D) 4

63. If the equations $x^2 + ax + b = 0$ and $x^2 + bx + a = 0$, $(a \neq b)$ have a common root then $a + b =$
(A) 2 (B) -1 (C) 3 (D) 4

64. Study the graph of the quadratic polynomial $f(x) = ax^2 + bx + c$ and choose the correct option



(A) $a < 0, b < 0\ and\ c > 0$ (B) $a < 0, b > 0\ and\ c > 0$
(C) $a > 0, b > 0\ and\ c > 0$ (D) $a < 0, b > 0\ and\ c < 0$

65. $(\sec A + \tan A)(1 - \sin A) =$

(A) sec A (B) sin A (C) cosec A (D) cos A

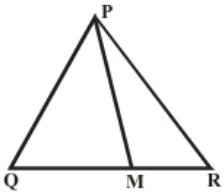
66. Given, $3\sin\theta + 4\cos\theta = 5$, then what is the value of $3\cos\theta - 4\sin\theta$?

(A) 16 (B) 1 (C) 25 (D) 0

67. The point on the y-axis, which is equidistant from the points A(6,5) and B(–4, 3)

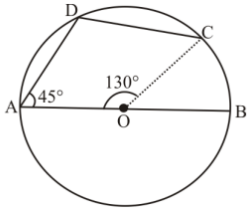
(A) (9, 0) (B) (0, 9) (C) (0, 4) (D) (0, 3)

68. In $\Delta PQR, \frac{PQ}{PR} = \frac{QM}{MR}$, $\angle Q = 75^O$ and $\angle R = 45^O$. The measure of $\angle QPM$ is



(A) 75^O (B) 30^O (C) 45^O (D) 40^O

69. In the given circle with centre at O, $\angle BAD = 45^O$ and $\angle AOC = 130^O$. What is $\angle OCD$



(A) 55^O (B) 70^O

(C) 45^O (D) 60^O

70. If p^{th} term of an A.P is q and q^{th} term is p , then its 4^{th} term is

(A) $q - p + 4$ (B) $p - q - 4$

(C) $p + q + 4$ (D) $p + q - 4$

71. A card is drawn at random from a well shuffled pack of 52 cards

X : The card drawn is black or a king

Y : The card drawn is a club or heart or a jack , which of the following is correct.

(A) $P(X) > P(Y)$ (B) $P(X) \geq P(Y)$

(C) $P(X) = P(Y)$ (D) $P(X) < P(Y)$

72. ABCD is a square. The diagonals AC and BD meet at O. Let K, L be the points on AB such that AO = AK, BO = BL. If $\angle LOK = \theta$, then what is the value of $\tan\theta$?

(A) $\frac{1}{\sqrt{3}}$ (B) $\sqrt{3}$ (C) 1 (D) $\frac{1}{2}$

73. A metallic spherical shell of internal and external diameters 4cm and 8cm respectively is melted and re-casted into a cone of base diameter 8cm. The height of the cone is

(A) 14 cm (B) 15 cm (C) 16 cm (D) 13 cm

74. The pair of equations $3^{x+y} = 81$ and $81^{x-y} = 3$ has

(A) no solution (B) the solution $x = 2\frac{1}{2}, y = 1\frac{7}{8}$

(C) the solution $x = 2, y = 2$ (D) the solution $x = 2\frac{1}{8}, y = 1\frac{7}{8}$

75. If the number $2345a60b$ is exactly divisible by 3 and 5, then the maximum value of $a + b$ is

(A) 12 (B) 13 (C) 14 (D) 15

76. If $x = \sqrt{\frac{7+4\sqrt{3}}{7-4\sqrt{3}}}$ then $x + \frac{1}{x}$ is

(A) 0 (B) -1 (C) 14 (D) 2

77. The remainder when $1 + x + x^2 + x^3 \ldots\ldots\ldots\ldots + x^{2024}$ is divided by $x + 1$ is

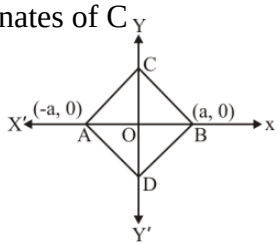
(A) 0 (B) -1 (C) 1 (D) 2025

78. If $cosecx + cotx = a$, then the value of $cosx$ is

(A) $a^2 + \frac{1}{a^2}$ (B) $\frac{a^2+1}{a^2-1}$

(C) $\frac{a^2-1}{a^2+1}$ (D) $\frac{a^2+1}{2a}$

79. In the figure, ΔABC and ΔABD are equilateral triangles. What are the coordinates of C and D



(A) $(0, a\sqrt{3}), (0, -a\sqrt{3})$ (B) $(0, -a\sqrt{3}), (0, a\sqrt{3})$

(C) $(a\sqrt{3}, 0), (-a\sqrt{3}, 0)$ (D) $(a\sqrt{3}, 0), (-a\sqrt{3}, 0)$

80. If $cot\theta + cos\theta = p$ and $cot\theta - cos\theta = q$, then the value of $p^2 - q^2$ is

(A) $2\sqrt{pq}$ (B) $2pq$ (C) $4pq$ (D) $4\sqrt{pq}$

81. If P is a point on the side AC of ΔABC such that $PA = PB = PC$, then

(A) $AB \times BC = AP^2$ (B) $AP^2 + CP^2 = AC^2$

(C)$AB^2 + BC^2 = AC^2$ (D) $AC \times AP = AB \times BC$

82. If $sin\theta$ and $cos\theta$ are the roots of the $ax^2 + bx + c = 0$, then

(A) $a^2 - b^2 + 2ac = 0$ (B) $a^2 + b^2 - 2ac = 0$

(C) $(a - c)^2 = b^2 + c^2$ (D) None of these

83. The ratio in which the x-axis divide the line segment joining the points (2, –3) and (5, 6) is

(A) 1: 3 (B) 1: 2 (C)3: 1 (D) 2: 1

84. The area of the triangle formed by the lines $2x + 3y = 12, x - y - 1 = 0$ and $x = 0$ is

(A.) 7.5 sq. units (B) 7 sq. units (C) 6.5 sq. units (D) 6 sq. units

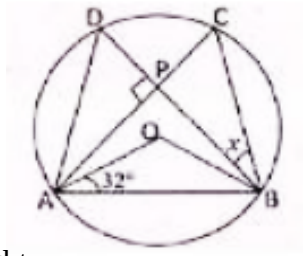
85. A polygon has prime number of sides. Its number of sides is equal to the sum of the two least consecutive primes. The number of diagonals of the polygon is

(A) 4 (B) 5 (C) 7 (D) 10

86. If x, y and z are real and $(x - 2)^2 + (y - 3)^2 + (z - 4)^2 = 0$, then the value of $xy + yz + zx$ is

(A) 24 (B) 26 (C) 28 (D) 30

87. In figure, 'O' be the centre of the circle, $\angle OAB = 32^o$, $\angle APD = 90^o$ then the value of x is



(A) 30^o (B) 32^o (C) 34^o (D) 36^o

88. If the radius of the base of a right circular cylinder is halved, keeping the height same, what is the ratio of the volume of the reduced cylinder to that of the original.

(A) 1:5 (B) 1:6

(C) 1:4 (D) 1:7

89. The angle of elevation of the top of a tower at a point on the ground is 30^o. If on walking 20 *metres* toward the tower, the angle of elevation becomes 60^o, then the height of the tower is

(A) 10 *metre* (B) $\frac{10}{\sqrt{3}}$ *metre*

(C) $10\sqrt{3}$ *metres* (D) None of these

90. Mean of a certain number of observations is x. If each observation is divided by m ($m \neq 0$) and increased by n, then the mean of new observation is:

(A) $\frac{\bar{x}}{m} + n$ (B) $\frac{\bar{x}}{m} - n$

(C) $m\bar{x} - n$ (D) $m\bar{x} + n$

91. A number x is chosen at random from the numbers –3, –2, –1, 0, 1, 2, 3, the probability that $|x| < 2$ is

(A) $\frac{5}{7}$ (B) $\frac{2}{7}$ (C) $\frac{1}{7}$ (D) $\frac{3}{7}$

92. The sum of *n* terms of the series $\frac{1}{1+\sqrt{3}} + \frac{1}{\sqrt{3}+\sqrt{5}} + \frac{1}{\sqrt{5}+\sqrt{7}} + \ldots\ldots$ is

(A) $\sqrt{2n+1}$ (B) $\frac{1}{2}\sqrt{2n+1}$

(C) $\sqrt{2n-1}$ (D) $\frac{1}{2}(\sqrt{2n+1}-1)$

93. If *a*, *b*, *c* are in A.P., then $\frac{1}{bc}, \frac{1}{ca}, \frac{1}{ab}$ will be in

(A) A.P. (B) G.P. (C) H.P. (D) None of these

94. If, α and β are the roots of the equation $2x^2 - 3x - 6 = 0$, then what is the equation whose roots are $\alpha^2 + 2$ and $\beta^2 + 2$?

(A) $4x^2 + 49x + 118 = 0$ (B) $4x^2 - 49x + 118 = 0$

(C) $4x^2 - 49x - 118 = 0$ (D) $x^2 - 49x + 118 = 0$

95. If –5 is a root of the quadratic equation $2x^2 + px - 15 = 0$ and the quadratic equation $p(x^2 + x) + k = 0$ has equal roots then k =

(A) $\frac{4}{7}$ (B) $-\frac{4}{7}$ (C) $\frac{7}{4}$ (D) $-\frac{7}{4}$

96. Three small metallic cubes whose edges are in the ratio 3:4:5 are melted to form a big cube. If the diagonal of the big cube is 18 cm, then the total surface area of the smallest cube is

(A) 154 cm^2 (B) 184 cm^2

(C) 216 cm^2 (D) 162 cm^2

97. In a triangle the sum of any two sides exceeds the third side by 6 cm. Its area is

(A) $12\sqrt{3}$ (B) $9\sqrt{3}$ (C) $15\sqrt{3}$ cm^2 (D) $18\sqrt{3}$ cm^2

98. The HCF of the polynomials $(2x-1)(5x^2 - ax + 3)$ and $(x-3)(2x^2 + x + b)$ is $(2x-1)(x-3)$

(A) $16, -1$ (B) $-16, 1$

(C) $-16, -1$ (D) $16, 1$

99. The remainder when x^{45} is divided by $x^2 - 1$ is

(A) $2x$ (B) $-x$ (C) 0 (D) x

100. The remainder when 43^{197} is divided by 7.

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

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