C

INSTRUCTIONS **NUMBER OF QUESTIONS : 100** **TIME : 2 Hrs**

1. ATTEMPT ALL QUESTIONS WITHIN THE TIME.
2. EACH QUESTION CARRIES 1 MARK
3. NO NEGATIVE MARKS.
4. DON'T DO ROUGH WORK ON QUESTION PAPER AND OMR.
5. USE BLACK (OR) BLUE PEN FOR BUBBLING ON OMR.

CORRECT METHOD OF BUBBLING

WRONG METHOD OF BUBBLING

MATHEMATICS

1. The [HCF × LCM] for the numbers 50 and 20 is

   1. 10 2. 100 3. 1000 4. 50

2. If a, b are coprime, then a^2, b^2 are

   1. Coprime 2. Not coprime 3. Odd numbers 4. Even numbers

3. Which of the following is not an irrational number?

   1. $5 - \sqrt{3}$ 2. $\sqrt{5}+\sqrt{3}$ 3. $4+\sqrt{2}$ 4. $5+\sqrt{9}$

4 $n^2 - 1$ is divisible by 8, if n is

   1. An integer 2. A natural number 3. An odd integer 4. An even integer

5. How many prime factors are there in prime factorization of 5005

   1. 2 2. 4 3. 6 4. 7

6. If 1 is zero of the polynomial $p(x) = ax^2 - 3(a - 1)x - 1$, then the value of 'a' is

   1. 1 2. –1 3. 2 4. –2

7. The degree of the polynomial $(x + 1)(x^2 - x - x^4 + 1)$ is

   1. 2 2. 3 3. 4 4. 5

8. The number of polynomials having zeroes –2 and 5 is

   1. 1 2. 2 3. 3 4. More than 3

9. The pair of linear equations $-5x + 2y = 8$ and $2x - 5y - 3 = 0$ have

   1. No solution 2. One solution 3. Two solution 4. Many solution

10. If the lines given by $3x + 2ky = 2$ and $2x + 5y + 1 = 0$ are parallel, then the value of k is

1. $\frac{-5}{4}$ 2. $\frac{2}{5}$ 3. $\frac{15}{4}$ 4. $\frac{3}{2}$

11. If a pair of linear equations is consistent, then the lines will be

1. Parallel 2. Always coincident
3. Intersecting or coincident 4. Always intersecting

12. If $x = a$, $y = b$ is the solution of the equation $x - y = 2$ and $x + y = 4$, then the values of a and b are, respectively

1. 3 and 5 2. 5 and 3 3. 3 and 1 4. -1 and -3

13. The lengths of the diagonals of a rhombus are 24cm and 32cm. The perimeter of the rhombus is

1. 9cm 2. 128cm 3. 80cm 4. 56cm

14 In ΔLMN, $\angle L = 60^0$, $\angle M = 50^0$. If $\Delta LMN \sim \Delta PQR$, then the value of $\angle R$ is

1. 40^0 2. 30^0 3. 70^0 4. 110^0

15. If ΔABC is right angled at A, then value of $\tan B \times \tan C$ is

1. 0 2. 1 3. -1 4. 2

16. Which of the following are not the sides of a right triangle

1. 9cm, 15cm, 12cm 2. 2cm, 1cm, $\sqrt{5}$ cm
3. 400mm, 300mm, 500mm 4. 9cm, 5cm, 7cm

17. The value of $\frac{2\tan 30^0}{1-\tan^2 30^0}$ equals to

1. $\cos 60^0$ 2. $\sin 60^0$ 3. $\tan 60^0$ 4. $\sin 30^0$

18. If $2 \sin 2\theta = \sqrt{3}$, then the value of θ is

1. 90^0 2. 30^0 3. 45^0 4. 60^0

19. If $\cos A + \cos^2 A = 1$, then $\sin^2 A + \sin^4 A$ is

1. -1 2. 0 3. 1 4. 2

20. If $3 \cos \theta = 1$, then the value of $\operatorname{cosec}\theta$ is

1. $2\sqrt{2}$ 2. $\frac{3}{2\sqrt{2}}$ 3. $\frac{2\sqrt{3}}{3}$ 4. $\frac{4}{3}\sqrt{2}$

21. If $\cot\theta = \frac{7}{8}$, the value of $\frac{(1+\cos\theta)(1-\cos\theta)}{(1-\sin\theta)(1+\sin\theta)}$ is

1. $\frac{49}{64}$ 2. $\frac{8}{7}$ 3. $\frac{64}{49}$ 4. $\frac{7}{8}$

22. If $\tan(A - B) = \frac{1}{\sqrt{3}}$ and $\sin A = \frac{1}{\sqrt{2}}$, then the value of B is

1. 45^0 2. 60^0 3. 0^0 4. 15^0

23. Which of the following is not a measure of central tendency

1. Mean 2. Median 3. Range 4. Mode

24. The arithmetic mean of 1, 2, 3,…..,n is

1. $\frac{n-1}{2}$ 2. $\frac{n+1}{2}$ 3. $\frac{n}{2}$ 4. $\frac{n}{2}+1$

25. Average of first ten prime numbers is

1. 12.6 2. 12.9 3. 13.9 4. 14.9

26. The roots of the equation $x^2 - \sqrt{3}x - x + \sqrt{3} = 0$ are

1. $\sqrt{3}, 1$ 2. $-\sqrt{3}, 1$ 3. $-\sqrt{3}, -1$ 4. $\sqrt{3}, -1$

27. The roots of the equation $ax^2 + x + b = 0$ are equal if

1. $b^2 = 4a$ 2. $b^2 < 4a$ 3. $b^2 > 4a$ 4. $ab = \frac{1}{4}$

28. Which of the following is not a quadratic equation

1. $(x-2)^2 + 1 = 2x - 3$ 2. $x(x+1) + 8 = (x+2)(x-2)$

3. $x(2x+3) = x^2 + 1$ 4. $(x+2)^3 = x^3 - 4$

29. The positive root of $\sqrt{3x^2 + 6} = 9$ is

1. 3 2. 4 3. 5 4. 7

30. The value of p for which the quadratic equation $x(x-4) + p = 0$ has real roots, is

1. $p \le 4$ 2. $p \ge 4$

3. $p \ne 4$ 4. Cannot be determined

31. The 4^{th} term from the end of A.P. –11, –8, –5,….49 is

1. 37 2. 40 3. 43 4. 58

32. If p – 1, p + 3, 3p – 1 are in A.P. then p is equal to

1. 4 2. –4 3. 2 4. –2

33. Which term of the A.P. 100, 90, 80,…. Is zero?

1. 5^{th} 2. 6^{th} 3. 10^{th} 4. 11^{th}

34. How many parallel tangents can a circle have?

1. 1 2. 2 3. Infinite 4. None of these

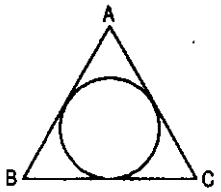
35. The length of tangent drawn from a point 8cm away from the centre of a circle of radius 6cm is

1. $\sqrt{5}$ cm 2. $2\sqrt{5}$ cm 3. 5cm 4. $2\sqrt{7}$ cm

36. Number of tangents to a circle which are parallel to a secant is

1. 1 2. 2 3. 3 4. Infinite

37. ABC is an equilateral triangle of side *a* cm. The radius of its in – circle is:



1. $\frac{a}{\sqrt{3}}cm$ 2. $\sqrt{3}\,a\,cm$ 3. $\frac{2a}{\sqrt{3}}cm$ 4. $\frac{a}{2\sqrt{3}}cm$

38. The circumference of a circle is 44cm. Then the area of circle is

1. $276cm^2$ 2. $44cm^2$ 3. $176cm^2$ 4. $154cm^2$

39. The angle through which the minute hand of the clock moves from 8 to 8 : 35 is

1. 210^0 2. 90^0 3. 60^0 4. 45^0

40. The radii of the base of cylinder and a cone of the same height are in the ratio 3 : 4. The ratio of their volumes is

1. 9 : 8 2. 9 : 4 3. 3 : 1 4. 27 : 16

41. The curved surface area of a right circular cone of height 15cm and base diameter 16cm is

1. $60\pi\ cm^2$ 2. $68\pi\ cm^2$ 3. $120\pi\ cm^2$ 4. $136\pi\ cm^2$

42. A pole 10m high cast a shadow 10m long on the ground, then the sun's elevation is

1. 60^0 2. 45^0 3. 30^0 4. 90^0

43. A tree casts a shadow 4m long on the ground, when the angle of elevation of the sun is 45^0. The height of the tree (in metres) is

1. 3 2. 4 3. 4.5 4. 5.2

44. If points (a, 0), (0, b) and (1, 1) are collinear, then $\frac{1}{a}+\frac{1}{b}=$

1. –1 2. 1 3. 0 4. 2

45. The distance of the point P(2, 3) from the x–axis is

1. 2 2. 3 3. 1 4. 5

46. The points (–4, 0), (4, 0), (0, 3) are the vertices of a

1. Right triangle 2. Isosceles triangle
3. Equilateral triangle 4. Scalene triangle

47. The fourth vertex D of a parallelogram ABCD whose three vertices are A(–2, 3), B (6, 7) and C (8, 3) is

1. (0, 1) 2. (0, –1) 3. (–1, 0) 4. (1, 0)

48. In a throw of a pair of dice, what is the probability of getting a doubler?

1. $\frac{1}{3}$ 2. $\frac{1}{6}$ 3. $\frac{5}{12}$ 4. $\frac{2}{3}$

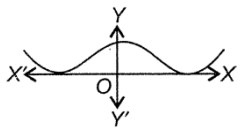
49. The probability of getting an number between 1 and 100 which is divisible by 7 is

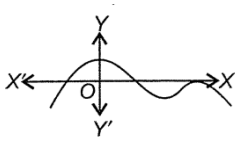
1. $\frac{11}{100}$ 2. $\frac{1}{7}$ 3. $\frac{7}{50}$ 4. $\frac{13}{100}$

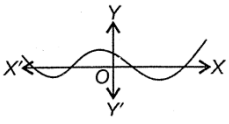
50. The value of $\frac{1}{1+\sqrt{2}}+\frac{1}{\sqrt{2}+\sqrt{3}}+\frac{1}{\sqrt{3}+\sqrt{4}}+\frac{1}{\sqrt{4}+\sqrt{5}}+\frac{1}{\sqrt{5}+\sqrt{6}}+\frac{1}{\sqrt{6}+\sqrt{7}}+\frac{1}{\sqrt{7}+\sqrt{8}}+\frac{1}{\sqrt{8}+\sqrt{9}}$ is _____

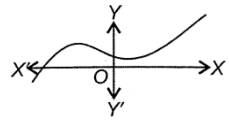
1. 0 2. 1 3. 2 4. 4

51. Which of the following graphs has more than three distinct real roots?

1. 

2. 

3. 

4. 

52. Value of x in pair of linear equations 36x + 24y = 702 and 24x + 36y = 558 is _____

1. $\frac{33}{2}$ 2. $\frac{145}{7}$ 3. 16 4. 17

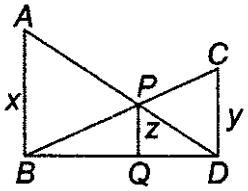
53. The roots of the equation $X^{2/3}+X^{1/3}-2=0$ are _____

1. 1, –8 2. 1, –2 3. $\frac{2}{3},\frac{1}{3}$ 4. $-2,-8$

54. If the m^{th} term of an A.P. is $\frac{1}{n}$ and n^{th} term is $\frac{1}{m}$, then the sum of first mn terms is _____

1. $mn+1$ 2. $\frac{mn+1}{2}$ 3. $\frac{mn-1}{2}$ 4. $\frac{mn-1}{3}$

55. In the given figure, AB||PQ||CD, AB = x units. CD = y units and PQ = z units, then $\frac{1}{x}+\frac{1}{y}=$



1. $\frac{2}{z}$ 2. $\frac{1}{z}$ 3. z^2 4. z

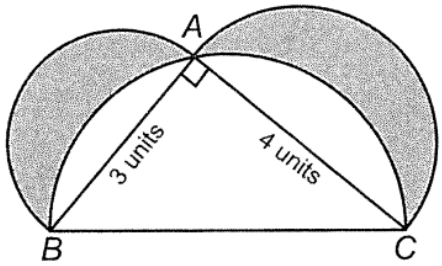
56. The coordinates of the centre of a circle passing through (1, 2), (3, –4) and (5, –6) is _____

1. (2, 11) 2. (11, 2) 3. (11, –2) 4. (–2, 11)

57. $\left(\frac{\sqrt{3}+2\cos A}{1-2\sin A}\right)^{-3}+\left(\frac{1+2\sin A}{\sqrt{3}-2\cos A}\right)^{-3}=$ _____

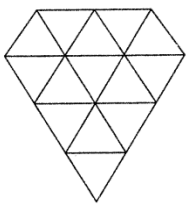
1. 1 2. $\sqrt{3}$ 3. 0 4. –1

58. In the given figure, ABC is a right–angled triangle, right–angled at A. Semicircles are drawn on AB, AC and BC as diameters. Find the area of the shaded region.



1. 7sq. units 2. 8sq. units 3. 5sq.units 4. 6sq.units

59. Count the number of triangles formed (in the given figure.)



1. 11 2. 18 3. 17 4. 20

60. The probility of getting 53 sundays in leap year is

1. $\frac{1}{7}$ 2. $\frac{2}{7}$ 3. $\frac{5}{7}$ 4. $\frac{6}{7}$

61. The refractive index of medium '1' relative to medium '2' is 4/3. Then what is the refractive index of medium 2 relative to medium 1?

1. $\frac{4}{3}$ 2. $\frac{3}{4}$ 3. $\frac{16}{9}$ 4. $\frac{9}{16}$

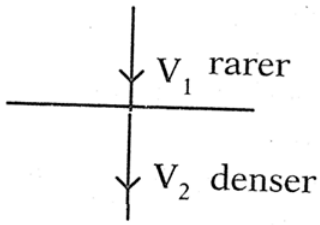
62. X : Total internal reflection occurs only when a light ray travels from rarer to denser medium.

Y : Total internal reflection occurs only when a light ray travels from denser to rarer medium.

Z : Total internal reflection occurs only when light ray travels through interface.

1. X and Y are false 2. Y and Z are false 3. X and Z are false 4. All are false

63. In the case of normal incidence



Which of the following are correct?

i) $\angle i = 0$

ii) $\angle r = 0$

iii) $\angle d = 0$

iv) $v_1 = v_2$

1. i 2. iii 3. i, ii, iii, iv 4. i, ii, iii

64. Which of the following absolute refractive index values is not possible?

1. $\sqrt{2}$ 2. $\sqrt{3}$ 3. $\sqrt{2}-2$ 4. $\sqrt{2}+1$

65. A postage stamp placed under glass appears raised by 8 mm. If refractive index of glass is 1.5, calculate the actual thickness of glass slab.

1. 12 mm 2. 24 mm 3. 32 mm 4. 48 mm

66. Find the radii of curvature of a convexo – concave convergent lens made of glass with refractive index n = 1.5 having focal length of 24 cm. One of the radii of curvature is double than the other.

1. R_1 = 6 cm, R_2 = 12 cm 2. R_1 = 10 cm, R_2 = 20 cm

3. R_1 = 15 cm, R_2 = 30 cm 4. R_1 = 24 cm, R_2 = 48 cm

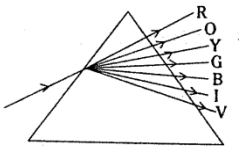
67. An object placed 45cm away from a lens forms an image on screen placed 90cm on the other side of the lens. A student identifies the type of lens and its focal length as

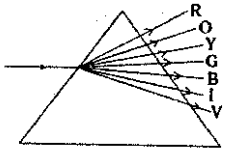
1. Convex lens and its focal length –30 cm
2. Convex lens and its focal length +30 cm
3. Convex lens and its focal length –90 cm
4. Convex lens and its focal length +90 cm

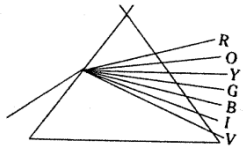
68. A prism with an angle A = 60^o produces an angle of minimum deviation of 30^o. Find the refractive index of material of the prism.

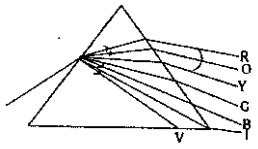
1. $\sqrt{2}$ 2. $\sqrt{3}$ 3. $\frac{\sqrt{3}}{2}$ 4. $\sqrt{\frac{3}{2}}$

69. Four students draw a ray diagram showing the dispersion through a glass prism. Which of the following is correct?

1. 

2. 

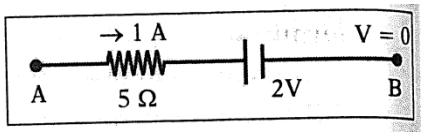
3. 

4. 

70. The refractive index of the prism is given by

1. $\frac{\sin\left(\frac{A+D}{2}\right)}{\sin\left(\frac{A}{2}\right)}$ 2. $\frac{\sin\left(\frac{A+D}{2}\right)}{\sin\left(\frac{D}{2}\right)}$ 3. $\frac{\frac{\sin(A+D)}{2}}{\frac{\sin A}{2}}$ 4. $\frac{\frac{\sin(A+D)}{2}}{\sin\left(\frac{D}{2}\right)}$

71. In the figure, the potential at A is …..when the potential at B is zero.

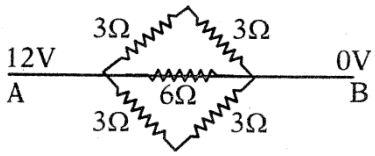


1. +7 V 2. –7 V 3. –3 V 4. +3 V

72. If the resistance of your body is $100000\,\Omega$, what would be the current that flows in your body when you touch the terminals of a 12 V battery?

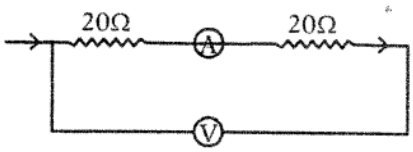
1. $12\times10^{-4}\,A$ 2. $12\times10^{-5}\,A$ 3. $\frac{10^5}{12}A$ 4. $12\,A$

73. Find the potential drop across and 3Ω resistance in the circuit.



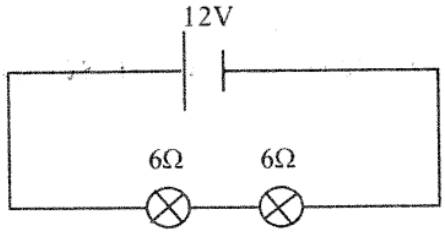
1. 24 V 2. 3 V 3. 12 V 4. 6 V

74. If voltmeter reads 20 volt, then find the ammeter reading.



1. 2 A 2. 1 A 3. $\frac{1}{2}$ A 4. 10 A

75. What is the power dissipated by each lamp of resistance 6Ω?



1. 3 W 2. 24 W 3. 12 W 4. 6 W

76. What resistance must be connected to a 15Ω resistance to provide an effective resistance of 6Ω?

1. 10 Ω 2. 21Ω 3. 5Ω 4. 6Ω

77. A force of 8N acts on a rectangular conductor 20 cm long placed perpendicular to a magnetic field. Determine the magnetic field induction if the current in the conductor is 40A.

1. 4 tesla 2. 2 tesla 3. 1 tesla 4. $\frac{1}{2}$ tesla

78. If a 50 cm long conductor is moving at a speed of 4 m/s is a 3 Tesla inductive field (uniform), then what is the maximum induced e.m.f?

1. 6 V 2. 12 V 3. 3 V 4. 24 V

79. In a circuit, 60V battery, three resistance $R_1 = 10\Omega$, $R_2 = 20\Omega$ and $R_3 = x\Omega$ are connected in series. If 1 ampere current flows in the circuit, find the resistance in R_3

1. 10Ω 2. 30Ω 3. 20Ω 4. 60Ω

80. An electric kettle is rated 3 KW, 250 V. Is this kettle can be used in a circuit which contains a 13 A fuse?

1. Yes 2. No 3. Data insufficient 4. None of these

CHEMISTRY

81. The displacement reaction between iron (III) oxide and a metal X is used for welding the rail tracks. Here X is:

1. Copper granules 2. Magnesium ribbon
3. Sodium pellets 4. Aluminium dust

82. When ferrous sulphate is heated strongly it undergoes decomposition to form ferric oxide as a main product accompanied by a change in colour from:

1. Blue to green 2. Green to blue 3. Green to brown 4. Green to yellow

83. All the methods mentioned below can be used to prevent the food from getting rancid except:

i. Storing the food in the air–tight containers
ii. Storing the food in refrigerator
iii. Keeping the food in clean and covered containers
iv. Always touching the food with clean hands

1. (i) and (ii) 2. (i) and (iii) 3. (i), (iii) and (iv) 4. (iii) and (iv)

84. In a chemical reaction between sulphuric acid and barium chloride solution the white precipitates formed is:

1. Hydrochloric acid 2. Barium sulphate 3. Chlorine 4. Sulphur

85. The atom of an element has electronic configuration 2, 8, 7. To which of the following elements would it be chemically similar?

1. N(7) 2. P(15) 3. Na(11) 4. F(9)

86. Consider the following elements $_{20}Ca$, $_{8}O$, $_{18}Ar$, $_{16}S$, $_{4}Be$, $_{2}He$
Which of the above elements would you expect to be in group 16 of the Periodic Table?

1. $_{20}Ca$ and $_{16}S$ 2. $_{20}Ca$ and $_{8}O$ 3. $_{18}Ar$ and $_{16}S$ 4. $_{8}O$ and $_{16}S$

87. The properties of eka–aluminium predicted by Mendeleev are the same as the properties of later discovered element:

1. Scandium 2. Germanium 3. Gallium 4. Aluminium

88. What happens when a solution of an acid is mixed with a solution of a base in a test tube?

(i) Temperature of the solution decreases

(ii) Temperature of the solution increases

(iii) Temperature of the solution remains the same

(iv) Salt formation takes place

1. (i) and (iv) 2. (i) and (iii) 3. (ii) only 4. (ii) and (iv)

89. Sodium hydroxide turns phenolphthalein solution

1. Pink 2. Yellow 3. Colourless 4. Orange

90. Which of the following set of elements is written in order of their increasing metallic character?

1. Na, Li, K 2. Be, Mg, Ca 3. Mg, Al, Si 4. C, O, N

91. Which of the following statements is correct about an aqueous solution of an acid and of a base?

(i) Higher the pH, stronger the acid

(ii) Higher the pH, weaker the acid

(iii) Lower the pH, stronger the base

(iv) Lower the pH, weaker the base

1. (i) and (iii) 2. (ii) and (iii) 3. (i) and (iv) 4. (ii) and (iv)

92. Which one of the following salts will dissolve in water to form an alkaline solution?

1. Potassium carbonate 2. Sodium chloride

3. Sodium Sulphate 4. Potassium sulphate

93. Ethane, with the molecular formula C_2H_6 has

1. 6 covalent bonds 2. 7 covalent bonds 3. 8 covalent bonds 4. 9 covalent bonds

94. Which of the following statements about graphite and diamond is true?

1. They can undergo the same chemical reactions

2. They have the same degree of hardness

3. They have the same electrical conductivity

4. They have the same crystal structure

95. Which of the following is the molecular formula of cyclobutane?

1. C_4H_{10} 2. C_4H_6 3. C_4H_8 4. C_4H_4

96. Which of the following is the correct arrangement of the given metals in decreasing order of their reactivity?

Zinc, Iron, Magnesium, Sodium

1. Zinc > Iron > Magnesium > Sodium
2. Sodium > Magnesium > Zinc > Iron
3. Sodium > Zinc > Magnesium > Iron
4. Sodium > Magnesium > Iron > Zinc

97. An element X is soft and can be cut with a knife. This is very reactive to air and cannot be kept open in air. It reacts vigorously with water. Identify the element from the following

1. Mg
2. Na
3. P
4. Ca

98. Which of the following pairs will give displacement reactions?

1. $AgNO_3$ solution and Copper metal
2. $FeSO_4$ solution and Copper metal
3. $CuSO_4$ solution and Silver metal
4. NaCl solution and Copper metal

99. Example of an amphoteric oxide is:

1. Na_2O
2. K_2O
3. Al_2O_3
4. MgO

100. Which of the following statements are usually correct for carbon compounds? These

(i) are good conductors of electricity

(ii) are poor conductors of electricity

(iii) have strong forces of attraction between their molecules

(iv) do not have strong forces of attraction between their molecules

1. (i) and (iii)
2. (ii) and (iii)
3. (i) and (iv)
4. (ii) and (iv)

THE END

KEY _CBSE_ (SET–1)

MATHS

1) **3**	2) **1**	3) **4**	4) **3**	5) **2**	6) **1**	7) **4**	8) **4**	9) **2**	10) **3**
11) **3**	12) **3**	13) **3**	14) **3**	15) **2**	16) **4**	17) **3**	18) **2**	19) **3**	20) **2**
21) **3**	22) **4**	23) **3**	24) **2**	25) **2**	26) **1**	27) **4**	28) **2**	29) **3**	30) **1**
31) **2**	32) **1**	33) **4**	34) **2**	35) **4**	36) **2**	37) **4**	38) **4**	39) **1**	40) **4**
41) **4**	42) **2**	43) **2**	44) **2**	45) **2**	46) **2**	47) **2**	48) **2**	49) **3**	50) **3**
51) **3**	52) **1**	53) **1**	54) **2**	55) **2**	56) **2**	57) **3**	58) **4**	59) **4**	60) **2**

PHYSICS

61) 2	62) 3	63) 4	64) 3	65) 2	66) 1	67) 2	68) 1	69) 4	70) 1
71) 1	72) 2	73) 4	74) 3	75) 4	76) 1	77) 3	78) 1	79) 2	80) 1

CHEMISTRY

81) 4	82) 3	83) 4	84) 2	85) 4	86) 4	87) 3	88) 4	89) 1	90) 2
91) 4	92) 1	93) 2	94) 1	95) 3	96) 2	97) 2	98) 1	99) 3	100) 4