PRACTICE PAPER – VIII

MATHEMATICS

1. Amplitude of $\frac{1+i}{1-i}$ is
   (a) $-\frac{\pi}{2}$ (b) $\frac{\pi}{2}$
   (c) 0 (d) none of these
2. If a, b, c ∈ R ac = bc ⇒ a = b, then
   (a) c ≥ 0 (b) c ≤ 0
   (c) 0 (d) c ≠ 0
3. If α, β be the roots of the equation $ax^2 + bx + c = 0$, then roots of the equation $a(x + 2)^2 + b(x + 2) + c = 0$ are
   (a) α + 2, β + 2 (b) α – 2, β – 2
   (c) α + 2, β – 2 (d) α – 2, β + 2
4. If one root of the equation $ax^2 + bx + c = 0$, $a \neq 0$ is $2 + \sqrt{3}$, then the other root is
   (a) $2 - \sqrt{3}$ (b) $-2 + \sqrt{3}$
   (c) $-2 - \sqrt{3}$ (d) none of these
5. Between any two distinct rational numbers there lie
   (a) infinitely many rational number
   (b) only one rational number
   (c) only finitely many number
   (d) only rational numbers
6. If $\left|\frac{z-4}{z-8}\right| = 1$, then Re(z) is equal to
   (a) –6 (b) 6
   (c) 8 (d) 17
7. Solution set of the equation
   $x^2 - (5 + i)x + 18 - i = 0$ is
   (a) {2 – 3i, 3 + 4i} (b) {2 + 3i, 3 – 4i}
   (c) {2 – 3i, 3 – 4i} (d) {3 – 2i, 2 + 3i}
8. The equation $ax^2 + bx + c = 0$; a, b, c ∈ Q, $a \neq 0$, has rational roots, if
   (a) $b^2 - 4ac > 0$
   (b) $b^2 - 4ac \geq 0$
   (c) $b^2 - 4ac$ is perfect square
   (d) $b^2 - 4ac$ is the perfect square of a rational number
9. Sum of the series $1 + x^2 + \frac{x^4}{2!} + \frac{x^6}{3!} + \ldots\ldots$ is
   (a) $\frac{1}{2}e^x$ (b) e^{x^2}
   (c) e^{-x^2} (d) none of these
10. If $y = x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \ldots\ldots$, then x is equal to
    (a) e^y (b) $e^y + 1$
    (c) $e^y - 1$ (d) log (1 + y)
11. The value of 'a' for which the quadratic equation $2x^2 - (a^3 + 8a - 1)x + a^2 - 4a = 0$, posses roots of opposite signs, are given by
    (a) a > 0 (b) a > 5
    (c) 4 < a < 8.5 (d) 0 < a < 4
12. Which of the following is not correct ?
    (a) $0.69 < \log_e 2 < 0.7$
    (b) $1 < \log_e 3 < 1.1$
    (c) $1.3 < \log_e 4 < 1.4$
    (d) $2.719 < e < 2.72$
13. $\frac{1 + \frac{1}{2!} + \frac{1}{4!} + \frac{1}{6!} + \ldots\ldots}{1 + \frac{1}{3!} + \frac{1}{5!} + \frac{1}{7!} + \ldots\ldots}$ is equal to
    (a) $\frac{e^2 - 1}{e^2 + 1}$ (b) $\frac{e^2 + 1}{e^2 - 1}$
    (c) $\frac{1}{2}\left(\frac{e^2 + 1}{e^2 - 1}\right)$ (d) $\frac{1}{2}\left(\frac{e^2 - 1}{e^2 + 1}\right)$
14. If ${}^{n-1}C_6 + {}^{n-1}C_7 > {}^nC_6$, then
    (a) n > 4 (b) n > 12
    (c) n ≥ 3 (d) n > 13
15. In a steamer there are stalls for 15 animals and there are cows, horses and calves (not less than 15 of each) ready to be shipped. The total number of ways in which ship load can be made is
    (a) 15^3 (b) 3^{15}
    (c) ${}^{15}P_3$ (d) ${}^{15}C_3$

16. A person draws a card from a pack of 52 playing cards, replaces it and shuffles the pack. He continue doing this unitl be draws a spade. The chance that he will fail in the first two drawn is

(a) $\frac{9}{24}$ (b) $\frac{1}{64}$

(c) $\frac{1}{16}$ (d) $\frac{9}{16}$

17. From a pack of 52 cards, the cards are drawn one by one till an ace appears. The chance that an ace does not come up in first 26 cards is

(a) $\frac{46}{153}$ (b) $\frac{23}{27}$

(c) $\frac{109}{153}$ (d) none of these

18. On a railway tract, there are 20 stations. The number of tickets required in order that it may be possible to book a passanger from every every station to every after is

(a) C(20, 2) (b) P(20, 2)

(c) 20^2 (d) none of these

19. A class is composed of two brothers and six other boys. In how many ways can all the boys be seated at a round table so that the two brothers are not seated besides each other ?

(a) 720 (b) 1440

(c) 3600 (d) 4320

20. There are three works in a library; one is of 3 volumes, second is of 4 volumes and the third is of only one volume. They are placed at random on a shelf. What is the chance that the volumes of the same work are placed together ?

(a) $\frac{1}{40}$ (b) $\frac{3}{140}$

(c) $\frac{9}{70}$ (d) none of these

21. Two mutually exclusive events E_1 and E_2 are

(a) always independent

(b) never independent

(c) never independent if $E_1 \neq \phi_1$, $E_2 \neq \phi_2$

(d) none of these

22. The coefficient of x^n in the expansion of $(1 - x)^{-1}$ is

(a) $(-1)^n$ (b) 1

(c) $(-1)^n n$ (d) n

23. The value of ${}^nC_0 - {}^nC_1 + {}^nC_2 \ldots\ldots + (-1)^n {}^nC_n$ is

(a) 1 (b) n

(c) 2^n (d) 0

24. The equations $2x + 3y = 7$, $14x + 21y = 49$ has

(a) infinitely many solutions

(b) a unique solution

(c) no solution

(d) finitely many solutions

25. The number of subsets of a set containing n distinct elements is

(a) n (b) 2n

(c) 2^n (d) n^2

26. The middle term in the expansion of $\left(x + \frac{1}{x}\right)^{10}$ is

(a) ${}^{10}C_4 \cdot \frac{1}{x}$ (b) ${}^{10}C_6$

(c) ${}^{10}C_5$ (d) ${}^{10}C_7\, x^2$

27. $\begin{vmatrix} x & a & a & a \\ a & x & a & a \\ a & a & x & a \\ a & a & a & x \end{vmatrix}$ is equal to

(a) 0 (b) $(x + 3a)(x - a)^3$

(c) a^4 (d) none of these

28. If $D = \begin{vmatrix} 1 & 2 & 3 \\ 2 & -1 & 0 \\ 3 & 4 & 5 \end{vmatrix}$, then $\begin{vmatrix} 1 & 6 & 3 \\ 4 & -6 & 0 \\ 3 & 12 & 5 \end{vmatrix}$ is equal to

(a) 2D (b) 3D

(c) 6D (d) 0

29. The largest value of $\sin\theta \cos\theta$ is

(a) 1 (b) $\frac{1}{2}$

(c) $\frac{1}{\sqrt{2}}$ (d) $\frac{\sqrt{3}}{2}$

30. $\sin\left\{\sin^{-1}\left(\frac{\sqrt{3}}{5}\right)+\cos^{-1}\left(\frac{\sqrt{3}}{5}\right)\right\}$ is equal to

(a) $\frac{\pi}{2}$ (b) 1

(c) 0 (d) none of these

31. The only integral root of the equation $\det\begin{bmatrix}2-x & 5 & 3\\ 2 & 5-x & 6\\ 3 & 6 & 10-x\end{bmatrix}=0$ is

(a) 3 (b) 2

(c) 1 (d) none of these

32. Solution set of the equation $\begin{vmatrix}x & 3 & 7\\ 2 & x & 2\\ 7 & 6 & x\end{vmatrix}=0$ is

(a) {–9, 2, 7} (b) {0, 2, 7}

(c) {1, 2, 7} (d) none of these

33. If $\theta = \tan^{-1}x$, then sin 2θ is equal to

(a) $\frac{2x}{1+x^2}$ (b) $\frac{2x}{1-x^2}$

(c) $\frac{1-x^2}{1+x^2}$ (d) none of these

34. The perimeter of a certain sector of a circle is equal to half that of the circle of which it is a part. The circular measure of the angle of the sector is

(a) 2 (b) $\frac{\pi}{2}$

(c) $\pi - 2$ (d) $\pi + 2$

35. Let A contain n distinct numbers. How many bijections from A to A can be defined ?

(a) n^2 (b) $\lfloor n$

(c) n (d) none of these

36. The domain of the function $f(x) = \sqrt{|x| - x}$ is

(a) $[0, \infty]$ (b) $[-\infty, 0]$

(c) R (d) none of these

37. If ABCD is a cyclic quadrilateral, then cos A + cos B is equal to

(a) 0

(b) cos C + cos D

(c) (cos C + cos D)

(d) none of these

38. Let x be any real, then [x + y] = [x] + [y] holds for

(a) $y \in R$ (b) $y \in I$

(c) $y \in Q$ (d) $y \in R, y \in Q$

39. If $f(x) = 2^x$, then f(0), f(1), f(2) ..... are in

(a) A.P (b) G.P

(c) H.P (d) arbitrary

40. If 5 sin θ = 3, then $\frac{\sec\theta+\tan\theta}{\sec\theta-\tan\theta}$ is equal to

(a) $\frac{1}{4}$ (b) 4

(c) 2 (d) none of these

41. If $\sin^{-1}x = \frac{\pi}{5}$, then $\cos^{-1}x$ is equal to

(a) $\frac{\pi}{10}$ (b) $\frac{3\pi}{10}$

(c) $\frac{5\pi}{4}$ (d) $\frac{7\pi}{4}$

42. $\sin^{-1}(\cos(\sin^{-1}x)) + \cos^{-1}(\sin(\cos^{-1}x))$ is equal to

(a) 0 (b) $\frac{\pi}{4}$

(c) $\frac{\pi}{2}$ (d) $\frac{3\pi}{4}$

43. $4[\cot^{-1}3 + \operatorname{cosec}^{-1}(\sqrt{5})]$ is equal to

(a) π (b) $\frac{\pi}{2}$

(c) $\frac{\pi}{4}$ (d) $\frac{3\pi}{4}$

44. Let $f(x) = \frac{x}{1+x} - \log(1+x)$, where x > 0, then f is

(a) an increasing function

(b) a decreasing function

(c) neither increasing nor decreasing

(d) none of these

45. The normal to the curve $2y = 3 - x^2$ at (1, 1) is

(a) x + y = 0

(b) x + y + 1 = 0

(c) x – y + 1 = 0

(d) x – y = 0

PHYSICS

46. A body goes 20 km north and then 10 km due east. The displacement of body from its starting point is
(a) 30 km (b) 25.2 km
(c) 22.36 km (d) 10 km

47. Which pair is not correct?
(a) Temperature – Thermometer
(b) Atmospheric pressure – Barometer
(c) Relative density – Hygrometer
(d) Unit of charge – Coulomb

48. The practical unit of resistance is 0.1Ω is equal to
(a) 10^{18} emu (b) 10^{9} emu
(c) 10^{15} emu (d) none of these

49. A body measures 5N in air and 2 N when put in water. The buoyant force is
(a) 7 N (b) 9 N
(c) 3 N (d) none of these

50. The absorptive power of perfectly black body is
(a) 0 (b) 1
(c) less than 1 (d) infinity

51. A person swimming in a fresh water pool, obeying
(a) Newton's second law
(b) Gravitational law
(c) Newton's third law
(d) Newton's first law

52. According to classical theory of Rutherford model, the path of electron will be
(a) parabolic (b) hyperbolic
(c) circular (d) elliptical

53. Bohr's theory was modified by
(a) Rutherford and Soddy
(b) Planck
(c) Hund
(d) Summerfield

54. The passenger move forward when train stops, due to
(a) inertia of passenger
(b) inertia of train
(c) gravitation pull by earth
(d) none of these

55. The electrostatic capacitance depends on
(a) nature of conductor
(b) size of conductor
(c) thickness of conductor
(d) colour of conductor

56. The formation of mirages is explained by
(a) total reflection of light
(b) refraction of light
(c) diffraction
(d) dispersion

57. Which one proves transverse nature of waves
(a) Polarisation (b) Diffraction
(c) Interference (d) All of those

58. The intensive property among the following is
(a) energy (b) volume
(c) entropy (d) temperature

59. Electric fan works on the principle of
(a) electric dynamo
(b) electric generator
(c) both (a) and (b)
(d) none of these

60. Doppler's effect in sound is due to
(a) motion of source
(b) motion of observer
(c) relative motion of source and observer
(d) none of these

61. The duration of day is highest in
(a) mercury (b) venus
(c) earth (d) mars

62. Two similar waves are propagating in x-axis and another one in y-axis. When they collide to superimpose, then resultant wave will be
(a) elliptical (b) hyperbolic
(c) straight line (d) parabolic

63. Photoelectric effect shows
(a) wave nature of electrons
(b) particle nature of light
(c) both (a) and (b)
(d) none of these

64. Kirchhoff's I and II laws are based on conservation of
(a) energy and charge
(b) charge and energy
(c) mass and charge
(d) none of these

65. The filament of bulb is made of
(a) mercury (b) copper
(c) tungsten (d) none of these

66. The idea of calculus was given by
(a) Newton (b) Einstein
(c) Marconi (d) Planck

67. If size of aperture is decreased
(a) intensity of image is decreased
(b) no effect in formation of image
(c) any of these
(d) none of these

68. Pendulum after some time becomes slow in motion and finally stops due to
(a) air friction
(b) earth's gravity
(c) mass of pendulum
(d) none of these

69. Absolute zero is the condition at which
(a) molecular motion ceases
(b) gas becomes liquid
(c) gas cannot be liquified
(d) random motion of molecules occur

70. The process by which gas is converted into liquid is called
(a) sublimation (b) evaporation
(c) liquifaction (d) none of these

71. α-particles are
(a) ionised helium atom
(b) hydrogen atom
(c) neutral atom
(d) all of these

72. Atoms having different atomic number as well as different mass number but having same number of neutrons
(a) isotopes (b) isobars
(c) isotones (d) isodiaphers

73. Meteors are
(a) small stars
(b) burnt pieces of comets that fall on earth
(c) comets without tail
(d) none of these

74. Two wires carry current in different direction. They will
(a) attract each other
(b) repel each other
(c) create gravitational field
(d) any of these

75. Retina of eye corresponds to which part of camera ?
(a) film (b) shutter
(c) aperture (d) lens

76. Force responsible for the circular motion of the body is
(a) centripetal force (b) centrifugal force
(c) gravitational force (d) none of these

77. In fission of U-235, the percentage of mass converted into energy is about
(a) 0.1% (b) 0.25%
(c) 0.3% (d) 2%

78. The main source of sun's energy is
(a) nuclear fusion
(b) nuclear fission
(c) gravitational contraction
(d) combustion

79. When light passed from one medium to another medium which one of the quantities remain unchanged?
(a) Frequency (b) Velocity
(c) Wavelength (d) Refractive index

80. A cyclist moving at a speed of 20 m/s takes a turn. If he doubles his speed, then chance of overturn
(a) is doubled
(b) is halved
(c) becomes four times.
(d) becomes 1/4 times

81. A convex lens becomes less converging when placed in
(a) oil (b) water
(c) both (a) and (b) (d) none of these

82. A plano-convex lens has refractive index 1.6 and radius of curvature 60 cm. What is focal length of lens?
(*a*) 50 cm
(*b*) 100 cm
(*c*) 200 cm
(*d*) 150 cm

83. A particle covers 150 in 8th second starting from rest, its acceleration is
(*a*) 15 m/s^2
(*b*) 20 m/s^2
(*c*) 10 m/s^2
(*d*) 8 m/s^2.

84. When a metallic sphere is heated, then largest increase is in its
(*a*) volume (*b*) area
(*c*) diameter (*d*) same in all

85. A diamagnetic substance is placed in a magnetic field of a bar magnet. Then it is
(*a*) raepelled by magnet
(*b*) attracted by magnet
(*c*) attracted by S-poles and repelled by N-pole
(*d*) attracted by N-pole and repelled by S-pole

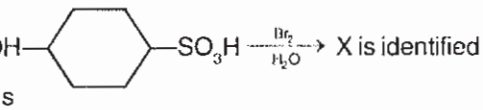
CHEMISTRY

86. Which of the following shows iso-structural species?
(*a*) NH_4^+ and NH_2^-
(*b*) CH_3^- and CH_3^+
(*c*) SO_4^{2-}, PO_4^{3-} and $[BF_4^-]$
(*c*) NH_4^+ and NH_3

87. Which of the following is known as alpha particle ?
(*a*) Electron
(*b*) Charged helium atom
(*c*) Proton
(*d*) Positron

88. The number of atoms in a simple cubic unit cell are
(*a*) 1 (*b*) 2
(*c*) 3 (*d*) 4

89. In aqua-regia the ratio of conc. HNO_3 and conc. HCl present is
(*a*) 1 : 3 (*b*) 3 : 1
(*c*) 2 : 3 (*d*) 3 : 2

90.  X is identified as
(*a*) 2, 4, 6-tribromophenol
(*b*) 2-bromo-4-hydroxylbenzene sulphonic acid
(*c*) 3, 5-dibromo-4-hydroxybenzene sulphonic acid
(*d*) 2-bromophenol

91. Absolute zero temperature is the temperature at which
(*a*) mass becomes zero
(*b*) volume becomes zero
(*c*) all molecular motion ceases
(*d*) the temperature of substance is zero

92. A solution is formed by diluting 250 ml of 0.400 N H_2SO_4 with one litre of water. The normality of above formed solution is
(*a*) 0.400 N (*b*) 0.899 N
(*c*) 0.040 N (*d*) 0.080 N

93. Which of the following product is formed by the reaction of sulphurdioxide with chlorine in presence of sunlight ?
(*a*) SO_2Cl (*b*) SO_2Cl_2
(*c*) $SOCl_2$ (*d*) SO_3Cl

94. Reaction of $R-\overset{\overset{O}{\|}}{C}-NH_2$ with a mixture of Br_2 and KOH produce RNH_2. During the reaction which of the intermediate product is formed?
(*a*) R — NH — Br (*b*) H— CO — NBr_2
(*c*) R — N = C = 0 (*d*) all of these

95. Which of the following process is related with the removal of sulphur by heating in the air?
(*a*) Smelting (*b*) Calcination
(*c*) Annealing (*d*) Roasting

96. Which of the following product is obtained by treating 1-butyne with $HgSO_4$ and H_2SO_4 ?
(a) $CH_3CH_2COCH_3$
(b) $CH_3CH_2CH_2CHO$
(c) $CH_3CH_2CH_2COOH$
(d) $CH_3CH_2CH = CH_2$

97. In nuclear reactor, the control rods are made up of cadmium because cadmium
(a) absorbs excess neutrons
(b) absorbs excess electrons
(c) emit neutrons
(d) emit electrons

98. In the fusion of one mole of a solid melting at 27°C the entropy change can be represented by which of the following (latent heat of fusion = 2930 J mol^{-1})?
(a) 2930 JK^{-1} mol^{-1} (b) 16.64 JK^{-1} mol^{-1}
(c) 104.67 JK^{-1} mol^{-1} (d) 9.77 JK^{-1} mol^{-1}

99. The discoveror of argon gas was
(a) Rayleigh (b) Ramsay
(c) both (a) and (b) (d) none of these

100. Which of the following is the composition of solder?
(a) Cu + Zn (b) Pb + Sb
(c) Cu + Sn (d) Pb + Sn

101. Which of the following has the maximum viscosity?
(a) Glycol (b) Ethanol
(c) Water (d) Acetone

102. How many electrons can be accommodated in a p-orbital?
(a) 6 electrons (b) 2 electrons
(c) 4 electrons (d) none of these

103 The term used for diffusion of solvent through a semi-permeable membrane is known as
(a) osmosis (b) plasmolysis
(c) diffusion (d) active absorption

104. Isotopes have same
(a) atomic number (b) mass number
(c) nucleons (d) none of these

105. Which of the following hydrocarbon is mainly present in Gobar gas?
(a) Butane (b) Propane
(c) Methane (d) Ethane

106. Precipitation of IV group cations takes place when H_2S passed is
(a) less ionised (b) highly ionised
(c) not ionised (d) none of these

107. Among the following groups the ortho and para directing group is
(a) $-COCH_3$ (b) –CN
(c) $-NHCOCH_3$ (d) –COOH

108. The iodoform reaction is given by which of the following?
(a) CH_3COCH_3 (b) $CH_3COC_2H_5$
(c) CH_3CHO (d) All of these

109. Which of the following represents Lucas reagent?
(a) H_2SO_4 + HCl
(b) MnO_2 + H_2SO_4
(c) $ZnCl_2$ + conc. HCl
(d) $ZnCl_2$ + conc. H_2SO_4

110. The geometry of $[Ni(CN)_4]^{2-}$ and $[NiCl_4]^{2-}$ ions are
(a) tetrahedral
(b) square planar
(c) square planar and tetrahedral respectively
(d) tetrahedral and square planar respectively

111. Surface water contains
(a) suspended impurities
(b) organic compound
(c) salt
(d) salt and organic compound

112. CO is isoelectronic with
(a) N_2 (b) NO_2
(c) O_2 (d) NH_3

113. Avogadro's number is the number of molecules present in
(a) 1 litre of molecule
(b) 1 g of molecule
(c) gram molecular mass
(d) 1 g atom of molecules

114. Ferric sulphate is represented by which formula ?
(a) $FeSO_4$ (b) $FeSO_3$
(c) $Fe(SO_4)_2$ (d) $Fe_2(SO_4)_3$

115. The maximum concentration of nitrogen is present in
(a) nitrolim
(b) calcium ammonium nitrate
(c) ammonium sulphate
(d) urea

116. Nylon is a
(a) polysaccharide (b) polyester
(c) polyamide (d) all of these

117. The element used for carrying out the nuclear reactions is
(a) Thorium-232 (b) Uranium-238
(c) Plutonium-239 (d) Neptunium-293

118. The metal which cannot be extracted by smelting process
(a) Zn (b) Al
(c) Pb (d) Fe

119. Aniline on treatment with sodium nitrite and HCl at 0°C to produce which of the following compound?
(a) Diazonium salt
(b) Hydrozo compound
(c) Phenol and N_2
(d) Nitroaniline

120. For a chemical reaction, which can never be a fraction
(a) rate constant (b) order
(c) molecularity (d) half life

121. Which is a planar molecule?
(a) PCl_3 (b) BCl_3
(c) NH_3 (d) H_3O^+

122. Which of the following do not travel with the speed of light?
(a) de Broglie waves
(b) X-rays
(c) Gamma rays
(d) All of these

123. If the concentration of the reactants are doubled in a reversible chemical equation having two reactants (in equilibrium), then the equilibrium constant will
(a) become one fourth
(b) doubled
(c) halved
(d) remains same

124. $CH_3CH_2CH_2OH \xrightarrow{PCl_5} A \xrightarrow{alc.\ KOH} B$,
'B' is identified as
(a) propanal
(b) propane
(c) propyne
(d) propene

125. The transition metal with least atomic number is
(a) Os (b) Zr
(c) Pt (d) Ru

INTELLIGENCE, LOGIC & REASONING

126. In a certain code 'MATHEMATICS' is coded as 'NZGSVNZGRXH'. How is 'TRIGONOMETRY' coded in that language?
(a) GIRLSMNLVGIB
(b) GIRSLMNLVGIB
(c) GIRSLMLNVGIB
(d) GIRTLMLNVGIB

127. Find the odd man out among the following.
(a) 1st January 2002
(b) 2nd April 2002
(c) 3rd September 2002
(d) 9th October 2002

128. Pointing to a man in the park, Neetu said, "He is the son of my grandmother's only daughter". If the man in the park is not the brother of Neetu, then how is Neetu's father related to the man's mother?
(a) Father (b) Son
(c) Grandfather (d) Brother

129. At my house I am facing east, then I turn left and go 5 km, then I turn right and go 12 km, then I turn left and go 5 km, and again I turn right and walk 12 km. How far am I now from the starting point of my journey, if the shortest route is taken into consideration?
(a) 33 km (b) 30 km
(c) 26 km (d) 52 km

Directions (Q. 130 – 131): *The following five questions assume that there is an imaginary system in which the digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 are substituted by a, b, c, d, e, f, g, h, i and j respectively. So that, for example 7764 is written as hhge. On the basis of the above information answer the following questions.*

130. 'ccc' men complete a certain job in 'bcde' days. After 'de' days, 'hi' more men joined them. Now the remaining work will be completed in _____days.

(*a*) gih

(*b*) deg

(*c*) iii

(*d*) hhh

131. The value of (hgb × edf) ÷ bf is equal to

(*a*) cdagj

(*b*) cdaij

(*c*) bbafi

(*d*) ccagj

132. In a certain code 'DEMONETIZATION' is written as 'AFJPKFQJWBQJLO'. How is 'RENAISSANCE' coded in that language?

(*a*) OFJFFTQBKDB

(*b*) OFJFBTQBKDB

(*c*) OFJBFTQBKDB

(*d*) OFKBFTPBKDB

Directions (Q. 133 – 135): *In each of the questions you are given two statements 'a' and 'b' followed by two conclusions I and II. You have to take the two statements to be true even if they seem to be at variance with the commonly known facts. You are to decide which of the given conclusions definitely follows from the given statements. Indicate your answer as*

(*a*) If only conclusion I follows.

(*b*) If only conclusion II follows.

(*c*) If either conclusion I or II follows.

(*d*) If neither I nor II follows.

133. Statements:

a. All books are copies.

b. All books are pencils.

Conclusions:

I. Some pencil are copies.

II. All copies are pencils

134. Statements:

a. All pencils are pens.

b. No pencils are copies.

Conclusions:

I. Some copies not pens.

II. Some pens are not copies.

135. Statements:

a. All cats are dogs.

b. Some cats are rats.

Conclusions:

I. Some cats are not rats.

II. Some dogs are rats.

ENGLISH LANGUAGE & COMPREHENSION

Directions (Q. 136 – 140): *Read the passage given below carefully and then answer the questions which are based on what is stated or implied in the passage.*

A four-year study conducted by the Infant Testing Centre in San Francisco, California, suggests that babies feel more comfortable around other babies than with strange adults. According to the study, babies benefit by being with their fellow infants daily. Whereas a baby might show fear of an adult stranger, he is likely to smile and reach out for an unfamiliar infant. By the time babies are one year old, they have begun to form friendship of a sort. The above findings, based on observation of 100 babies aged three months to three years, might prove interesting to working parents who have to find day-care for their babies. Family care in a private home, with several babies together, is probably the ideal way to care for babies under three Dr. Benjamin Spock, well-known paediatrician and author of books about babies, supports the idea. He says that family day-care is better than hiring a housekeeper or a baby-sitter.

136. A baby is likely to feel more at ease with

(*a*) teenage children

(*b*) fellow babies

(*c*) a housekeeper

(*d*) can't say

137. How should the working parents provide care to their babies?
(a) Take their babies along with them to their working place.
(b) Admit them to good nursery schools.
(c) Hire a maid servant for their care.
(d) Find a private home with other infants.

138. Which of the following is true about Dr. Benjamin Spock?
(a) He recommends baby-sitters.
(b) He conducts studies on infants.
(c) He runs a lab.
(d) He writes on issues related to infants.

139. Who is going to get a direction or clue from the findings stated in the passage?
(a) Paediatrician
(b) Working parents
(c) People running family care centres
(d) Babies

140. The passage is all about
(a) care for babies
(b) how to test infants
(c) parents and children
(d) can't say

Directions (Q. 141 – 142) : *To answer these questions, choose the word that is most opposite in meaning to the word given in capital letters.*

141. NAIVE
(a) nasty (b) incredulous
(c) numb (d) pedant

142. DISCOURTEOUS
(a) charming
(b) amusing
(c) discursive
(d) polite

Directions (Q. 143 – 145): *A number of sentences are given below, which when properly sequenced form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order to form a coherent paragraph.*

143. **A.** Safety regulations were ignored in the construction of high-rise blocks of flats.
B. These breaches became apparent when buildings which were constructed properly survived the tremors.
C. An entire system oiled by petty corruption was exposed when the quake hit one of the densely populated areas of the state.
D. Building contractors allegedly paid bribes to local officials and inspectors to build quickly and cheaply as the housing market boomed.
(a) DCBA (b) ABCD
(c) BACD (d) CDAB

144. **A.** Subsequently, it may involve joints of the knees, ankles, feet, hip, shoulders, elbows and wrists.
B. The onset of the first acute attack of gout is marked by sudden and severe pain in a joint.
C. Gout is a metabolic disease in which high levels of uric acid in the blood are characteristic.
D. Within hours, the affected joint is hot, red, swollen and extremely tender
(a) BCDA (b) CDAB
(c) CBDA (d) DABC

145. **A.** The spectacle of India's defence forces lined up on the borders with Pakistan. Even as its citizens are being torched within the country, is a tragic paradox.
B. However, the citizen's well-being is seriously undermined by social and political violence.
C. India's borders are secure from invasion.
D. Its military strength clearly rules out the possibility of any of the neighbouring countries obtaining a decisive outcome against India in a war.
E. As the decidedly stronger military and economic power in the region, India is not under threat of military invasion or defeat from any of its neighbours.
(a) AEDCB (b) BACDE
(c) EBCDA (d) CBDEA

Directions (Q. 146 – 147): *To answer these questions, choose the word that is similar in meaning to the word given in capital letters.*

146. OBTUSE
(a) stupid (b) diligent
(c) moderate (d) champ

147. PARLOUS
(a) tempting (b) obsolete
(c) dangerous (d) concrete

Directions (Q. 148 – 150): *In each of these questions, a related pair of words is followed by four pairs of words. Select the pair that best expresses a relationship similar to that expressed in the original pair.*

148. CULPRIT : CRIME
(a) police : thief (b) judge : verdict
(c) leader : speech (d) teacher : student

149. WATER : RIPPLE
(a) sand : storm
(b) breeze : heave
(c) wind : rustle
(d) light : spark

150. GERM : DISEASE
(a) war : destruction
(b) death : freedom
(c) problem : solution
(d) education : employment

ANSWERS

MATHEMATICS

1. (b)	2. (d)	3. (b)	4. (d)	5. (a)	6. (b)	7. (a)	8.(d)	9. (b)	10. (c)
11. (d)	12. (d)	13. (b)	14. (d)	15.(b)	16. (d)	17. (d)	18. (b)	19. (c)	20. (b)
21. (c)	22. (b)	23. (d)	24. (a)	25. (c)	26. (c)	27. (b)	28. (c)	29. (b)	30. (b)
31. (c)	32. (a)	33. (a)	34. (c)	35. (b)	36. (c)	37. (c)	38. (b)	39. (b)	40. (b)
41. (b)	42. (c)	43. (a)	44. (b)	45. (d)					

PHYSICS

46. (c)	47. (c)	48. (b)	49. (c)	50. (b)	51. (c)	52. (c)	53. (d)	54. (a)	55. (b)
56. (a)	57. (a)	58. (b)	59. (b)	60.(c)	61. (b)	62. (c)	63. (b)	64. (b)	65. (c)
66. (a)	67. (a)	68. (a)	69.(a)	70. (c)	71. (a)	72. (c)	73. (d)	74. (b)	75. (a)
76. (a)	77. (a)	78. (a)	79. (a)	80. (d)	81. (c)	82. (b)	83. (b)	84. (c)	85. (a)

CHEMISTRY

86. (c)	87. (b)	88. (a)	89. (a)	90. (c)	91. (c)	92. (d)	93. (b)	94. (c)	95. (d)
96. (a)	97. (a)	98. (d)	99. (c)	100. (d)	101. (a)	102. (b)	103. (a)	104. (a)	105. (c)
106. (b)	107. (d)	108. (a)	109. (c)	110. (c)	111. (a)	112. (a)	113. (c)	114. (d)	115. (d)
116. (c)	117. (c)	118. (b)	119. (a)	120. (c)	121. (b)	122. (a)	123. (a)	124. (d)	125. (b)

INTELLIGENCE, LOGIC & REASONING

126. (d)	127. (d)	128. (d)	129. (c)	130. (c)	131. (d)	132. (d)	133. (a)	134. (b)	135. (b)

ENGLISH LANGUAGE & COMPREHENSION

136. (b)	137. (d)	138. (d)	139. (b)	140. (a)	141. (b)	142. (d)	143. (d)	144. (c)	145. (a)
146. (a)	147. (c)	148. (b)	149. (c)	150. (a)					