

PRACTICE PAPER – IX

MATHEMATICS

1. $2 \cos^{-1}x = \cos^{-1}(2x^2 - 1)$ holds true for all
 - (a) $|x| \leq 1$
 - (b) $0 \leq x \leq 1$
 - (c) $|x| < \frac{1}{2}$
 - (d) none of these
2. $(\cos A + \cos B)(\cos 2A + \cos 2B)$ is equal to
 - (a) $\frac{\cos 4A + \cos 4B}{2(\cos A - \cos B)}$
 - (b) $\frac{\cos 4A \pm \cos 4B}{2(\cos A - \cos B)}$
 - (c) $\frac{\cos 4A \pm \cos 4B}{4(\cos A - \cos B)}$
 - (d) none of these
3. If $f(x) = \log \left(\frac{1+x}{1-x} \right)$, then $f\left(\frac{2x}{1+x}\right)$ is equal to
 - (a) $f(x)$
 - (b) $2f(x)$
 - (c) $4f(x)$
 - (d) none of these
4. If $f(x) = \frac{|x|}{x}$; $x \neq 0$; then $|f(x) - f(-x)|$ is equal to
 - (a) 0
 - (b) 2
 - (c) 1
 - (d) none of these
5. If $8\theta = \pi$, then $\cos 7\theta + \cos \theta$ is equal
 - (a) 1
 - (b) 0
 - (c) -1
 - (d) none of these
6. Which of the following is true?
 - (a) Domain of $\sin^{-1}x$ is $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$
 - (b) Range of $\cos(\sin^{-1}x + \cos^{-1}x)$ is $\{1\}$
 - (c) Range of $\cos(\sin^{-1}x + \cos^{-1}x)$ is $[-1, 1]$
 - (d) Range of $\cos^{-1}x$ is $\left[0, \frac{\pi}{2}\right]$
7. Which of the following functions is inverse to itself?
 - (a) $f(x) = \frac{1-x}{1+x}$
 - (b) $f(x) = 3^{\log x}$
 - (c) $f(x) = \frac{1-x^2}{1+x^2}$
 - (d) $f(x) = 2^{x(x-1)}$
8. The value of $\sec^2(\tan^{-1}2) + \operatorname{cosec}^2(\cot^{-1}3)$ is equal to
 - (a) 5
 - (b) 15
 - (c) 13
 - (d) none of these
9. Solution of the equation $\cos^{-1}(\sqrt{3}x) + \cos^{-1}x = \frac{\pi}{2}$ is given by
 - (a) $\pm \frac{1}{2}$
 - (b) $-\frac{1}{2}$
 - (c) $\frac{1}{2}$
 - (d) none of these
10. If $f(x) = \frac{x}{x-1} = \frac{1}{y}$, then $f(y) =$
 - (a) x
 - (b) $x-1$
 - (c) $1-x$
 - (d) $1+x$
11. If $\sin\alpha + \sin\beta + \sin\gamma = 3$, then value of $\cos\alpha + \cos\beta + \cos\gamma =$
 - (a) 0
 - (b) 1
 - (c) 2
 - (d) 3
12. $\tan(2 \sin^{-1}(4/5))$ is equal to
 - (a) $\frac{7}{24}$
 - (b) $\frac{-7}{24}$
 - (c) $\frac{-24}{7}$
 - (d) $\frac{24}{7}$
13. $\lim_{x \rightarrow 0} \left(\frac{\sin x - x}{x} \right) \cos\left(\frac{1}{x}\right)$ is equal to
 - (a) 0
 - (b) 1
 - (c) $\frac{1}{2}$
 - (d) none of these
14. If $f(x) = \begin{cases} \frac{\sin[x]}{[x]}, & [x] \neq 0 \\ 0, & [x] = 0 \end{cases}$, then $\lim_{x \rightarrow 0} f(x)$
 - (a) is equal to 1
 - (b) is equal to 0
 - (c) is equal to -1
 - (d) does not exist

15. $\int e^{ax} e^{bx} e^x$ is equal to
 (a) $\frac{1}{2} e^{2ax}$ (b) (e^{ax})
 (c) e^{ax} (d) $\frac{1}{2} e^{ax}$
16. If $f(x) = |x-1|$, then
 (a) $f(x^2) = (f(x))^2$
 (b) $f(x+y) = f(x) + f(y)$
 (c) $f(|x|) = |f(x)|$
 (d) $f(x)$ is not derivable at $x = 1$
17. $\sum_{r=1}^n \frac{r}{n^2}$ is equal to
 (a) $\frac{1}{2}$ (b) $\frac{1}{3}$
 (c) $\frac{1}{4}$ (d) none of these
18. The value of $\int_1^2 \frac{1}{x^2} e^{-1/x} dx$ is
 (a) $\frac{1}{\sqrt{e}} + \frac{1}{e}$ (b) $\frac{1}{e} - \frac{1}{\sqrt{e}}$
 (c) $\frac{1}{\sqrt{e}} - \frac{1}{e}$ (d) 0
19. $\int \frac{x+1}{(x+2)^2} e^x dx$ is equal to
 (a) $\frac{-e^x}{(x+2)^2}$ (b) $\frac{e^x}{x+2}$
 (c) $\frac{-e^x}{x+2}$ (d) none of these
20. $\lim_{x \rightarrow 0} \frac{1}{x}$
 (a) is equal to 0 (b) tends to ∞
 (c) tends to $-\infty$ (d) does not exist
21. $\lim_{x \rightarrow 0} x [x]$ is equal to
 (a) 0 or 1 (b) 0 or -1
 (c) 0 (d) none of these
22. $\int_0^{\pi/2} \sin x \sin 2x dx$ is equal to
 (a) $\frac{2}{3}$ (b) $\frac{1}{3}$
 (c) $\frac{\pi}{3}$ (d) none of these
23. $\int_{\pi/12}^{\pi/2} \frac{1}{\cos 2x} dx =$
 (a) $\log 3$ (b) $\frac{1}{2}$
 (c) $\frac{1}{3} \log 2$ (d) none of these
24. If $f(x)$ be any function which assumes only positive values and $f'(x)$ exists, then $f'(x)$ is equal to
 (a) $f(x) \frac{d}{dx} (e^{f(x)})$
 (b) $f(x) \frac{d}{dx} \{\log (f(x))\}$
 (c) $f(x) \frac{d}{dx} (e^{\log(f(x))})$
 (d) none of these
25. $\lim_{x \rightarrow 0} \frac{(1+x)^n - 1}{x}$ is equal to
 (a) 1 (b) n
 (c) n-1 (d) none of these
26. $\int \log x dx$ is equal to
 (a) $\frac{1}{2} (\log x)^2$ (b) $\frac{1}{x}$
 (c) $x \log x - x$ (d) none of these
27. $\hat{i} \cdot (2\hat{j} \times 3\hat{k}) + \hat{j} \cdot (2\hat{k} \times 3\hat{j}) + \hat{k} \cdot (2\hat{i} \times 3\hat{j})$ is equal to
 (a) 18 (b) 0
 (c) -18 (d) none of these
28. If the vectors $2\hat{i} + 3\hat{j} - 4\hat{k}$ and $a\hat{i} + \hat{j} - b\hat{j} + c\hat{k}$ are at right angles, then a, b, c can have values
 (a) $a = 2, b = 3, c = -4$
 (b) $a = 4, b = 4, c = 5$
 (c) $a = 4, b = 4, c = -5$
 (d) $a = 4, b = -4, c = -5$
29. C_1 and C_2 are the centres of the two circle whose radius are r_1 and r_2 . The two circle touch each other internally if
 (a) $|C_1 C_2| = r_1 + r_2$
 (b) $|C_1 C_2| = |r_1 - r_2|$
 (c) $|C_1 C_2| = r_1 - r_2$
 (d) $|C_1 C_2| = r_2 - r_1$

30. The length of perpendicular from the origin upon the line $\frac{x}{a} + \frac{y}{b} = 1$ is
- (a) $\frac{ab}{\sqrt{a^2+b^2}}$ (b) $\frac{-ab}{\sqrt{a^2+b^2}}$
- (c) $\frac{|ab|}{\sqrt{a^2+b^2}}$ (d) none of these
31. If cross product of two non-zero vectors is zero, then the vectors are
- (a) collinear (b) co-directional
- (c) co-initial (d) co-terminus
32. The number of vectors of unit length perpendicular to vectors $\vec{u} = \hat{i} + \hat{j}$ and $\vec{v} = \hat{j} + \hat{k}$, is
- (a) one (b) three
- (c) two (d) infinite
33. The line passing through (0, 1) and perpendicular to the line $x - 2y + 11 = 0$ is
- (a) $2x - y + 1 = 0$ (b) $2x - y + 3 = 0$
- (c) $2x + y - 1 = 0$ (d) $2x + y - 2 = 0$
34. The perpendicular distance of the origin from the line $3x + 4y + 1 = 0$ is
- (a) -1 (b) 1
- (c) $-\frac{1}{5}$ (d) $\frac{1}{5}$
35. If θ is the angle between two unit vectors \vec{a} and \vec{b} , then $\cos \theta$ is equal to
- (a) $\vec{a} + \vec{b}$ (b) $\vec{a} - \vec{b}$
- (c) $\vec{a} \cdot \vec{b}$ (d) $|\vec{a} \times \vec{b}|$
36. If $\vec{a}, \vec{b}, \vec{c}$ are three vectors, then $[\vec{a}, \vec{b}, \vec{c}]$ is not equal to
- (a) $[\vec{a}, \vec{c}, \vec{b}]$
- (b) $[\vec{c}, \vec{a}, \vec{b}]$
- (c) $-\vec{a} \cdot [\vec{c}, \vec{b}]$
- (d) none of these
37. The acute angle between the lines $x - y = 0$ and $y = 0$ is
- (a) 30° (b) 45°
- (c) 60° (d) 75°
38. The vertices of a triangle are (0, 3), (-3, 0) and (3, 0). The orthocentre of the triangle is
- (a) (0, 0) (b) (0, 3)
- (c) (3, 0) (d) (-3, 0)
39. The equation $(\vec{r} - (\hat{i} + \hat{j})) \cdot (\vec{r} - (\hat{j} + \hat{k})) = 0$ represents
- (a) a pair of unies
- (b) a pair of planes
- (c) a spheres
- (d) none of these
40. The spheres $x^2 + y^2 + z^2 + x + y + z - 1 = 0$ and $x^2 + y^2 + z^2 + x + y + z - 5 = 0$
- (a) intersect in a plane
- (b) intersect in five points
- (c) do not intersect
- (d) none of these
41. If a line passes through (2, 2) and is perpendicular to the line $3x + y = 3$, its y -intercept is
- (a) -4 (b) $\frac{4}{3}$
- (c) $-\frac{4}{3}$ (d) none of these
42. The lines $x + (k - 1)y + 1 = 0$ and $2x + k^2y - 1 = 0$ are at right angles if
- (a) $k = 1$ (b) $k > 1$
- (c) $k = -1$ (d) $|k| = 2$.
43. The distance of the point (x, y, z) from the xy -plane is
- (a) x (b) y
- (c) z (d) |z|
44. The lines $\frac{x-1}{1} = \frac{y-1}{2} = \frac{z-3}{0}$ and $\frac{z-2}{0} = \frac{y-3}{0} = \frac{z-3}{0}$ are
- (a) parallel (b) coincident
- (c) skew (d) perpendicular
45. The G.M. of the numbers $3, 3^2, 3^3, \dots, 3^n$ is
- (a) $3^{2/n}$
- (b) $3^{(n+1)/2}$
- (c) $3^{n/2}$
- (d) $3^{(n+1)/2}$

PHYSICS

46. Rectifier converts
 (a) mechanical energy to electrical energy
 (b) A.C. to D.C.
 (c) light energy to electrical energy
 (d) none of these.
47. What are the dimensions of $K = \frac{1}{4\pi\epsilon_0}$?
 (a) $C^2N^{-1}m^{-2}$ (b) Nm^2C^{-2}
 (c) Nm^2C^2 (d) unitless.
48. For formation of permanent magnets, the material should have
 (a) high coercivity (b) low coercivity
 (c) high retentivity (d) both (a) and (c).
49. In order to obtain a real image of magnification 2 using a converging lens of focal length 20 cm, where should be an object be placed?
 (a) 50 cm (b) 30 cm
 (c) - 50 cm (d) - 30 cm.
50. A ball is dropped from a height of 20 cm. Ball rebounds to a height of 10 cm. What is the loss of energy?
 (a) 25% (b) 75%
 (c) 50% (d) 100%.
51. When you move from equator to pole, the value of acceleration due to gravity (g)
 (a) increases
 (b) decreases
 (c) remains the same
 (d) increases then decreases.
52. A simple pendulum has time period T. The bob is given negative charge and surface below it is given positive charge. The new time period will be
 (a) less than T
 (b) greater than T
 (c) equal to T
 (d) infinite.
53. A bullet loses 1/20 of its velocity after penetrating a plank. How many planks are required to stop the bullet?
 (a) 6 (b) 9
 (c) 11 (d) 13
54. An aeroplane 400 m from north and 300 m south and then flies 1200 m upwards, then net displacement is
 (a) 1200 m (b) 1300 m
 (c) 1400 m (d) 1500 m.
55. Which law follows the law of conservation of energy?
 (a) Lenz's law (b) Kirchoff's law
 (c) Maxwell's law (d) Ampere's law.
56. Isogonic lines on magnetic map will have
 (a) zero angle of dip
 (b) zero angle of declination
 (c) same angle of declination
 (d) same angle of dip.
57. Pressure gradient has the same dimension as that of
 (a) velocity gradient (c) energy gradient
 (b) potential gradient (d) none of these.
58. If fundamental frequency of closed pipe is 50 Hz, then frequency of 2nd overtone is
 (a) 100 Hz (b) 50 Hz
 (c) 250 Hz (d) 150 Hz.
59. A boat of mass 40 kg is at rest. A dog of mass 4 kg moves in the boat with a velocity of 10 m/s. What is the velocity of boat?
 (a) 4m/s (c) 8m/s
 (b) 2m/s (d) 1m/s.
60. Which of the following has negative temperature coefficient of resistance?
 (a) copper (b) aluminium
 (c) iron (d) germanium.
61. At which place, earth's magnetism become horizontal?
 (a) magnetic pole
 (b) geographical pole
 (c) magnetic meridian
 (d) magnetic equator.
62. Magnetic dipole moment is a
 (a) scalar quantity
 (b) vector quantity
 (c) constant quantity
 (d) none of these.

63. What is the shape when a non-wetting liquid is placed in a capillary tube?
 (a) concave upward
 (b) convex upward
 (c) concave downward
 (d) convex downward.
64. Application of Bernoulli's theorem can be seen in
 (a) dynamic lift of aeroplane
 (b) hydraulic press
 (c) helicopter
 (d) none of these.
65. Unit of reduction factor is
 (a) ampere (b) ohms
 (c) tesla (d) weber.
66. Huygen wave theory allows us to know
 (a) the wavelength of the wave
 (b) the velocity of the wave
 (c) the amplitude of the wave
 (d) the propagation of wave fronts.
67. Which of the following is secondary cell?
 (a) Voltaic cell
 (b) Daniel cell
 (c) Leclanche cell
 (d) Edison cell.
68. Poisson's ratio cannot have the value
 (a) 0.1 (b) 0.7
 (c) 0.2 (d) 0.5
69. Radio frequency choke uses core of
 (a) air (b) iron
 (c) air and iron (d) none of these.
70. If a thermometer reads freezing point of water as 20°C and boiling point as 150°C , how much thermometer read when the actual temperature is 60°C ?
 (a) 98°C (b) 110°C
 (c) 40°C (d) 60°C
71. Apparatus used to find out velocity of sound in gas is
 (a) Melde's apparatus
 (b) Kundt's tube
 (c) Quincke's tube
 (d) none of these.
72. When the atmospheric temperature becomes nearly equal to the dew point, then
 (a) relative humidity is 100%
 (b) relative humidity is 90%
 (c) relative humidity is 50%
 (d) nothing can be said.
73. Current provided by a battery is maximum when
 (a) internal resistance equal to external resistance
 (b) internal resistance is greater than external resistance
 (c) internal resistance is less than external resistance
 (d) none of these.
74. If the temperature of atmosphere is increased the following character of sound waves is effected.
 (a) amplitude (b) frequency
 (c) velocity (d) wavelength.
75. A thin aluminium sheet is placed between the plates of a parallel plate capacitor. Its capacitance will
 (a) increases (b) decreases
 (c) remain same (d) become infinite.
76. A heater coil connected to a supply of a 220 V is dissipating some power P_1 . The coil is cut into half and the two halves are connected in parallel. The heater now dissipates a power P_2 . The ratio of power $P_1 : P_2$ is
 (a) 2 : 1 (b) 1 : 2
 (c) 1 : 4 (d) 4 : 1.
77. Order of e/m ratio of proton, α -particle and electron is
 (a) $e > p > \alpha$ (b) $p > \alpha > e$
 (c) $e > \alpha > p$ (d) none of these.
78. A body is projected with zero velocity from the top of a tower and it reaches the ground in 4 sec. Calculate the distance travelled
 (a) 80 m (c) 90 m
 (b) 160 m (d) 40 m.
79. Ultraviolet rays are used in
 (a) to detect scripture of old monuments
 (b) forensic labs
 (c) green house effect
 (d) none of these

80. A ray of light passing through the optic centre of a thick lens is
 (a) displaced and deviated
 (b) displaced but not deviated
 (c) not displaced and but deviated
 (d) none of these
81. According to Bohr's postulates which of the following quantities takes discrete values?
 (a) kinetic energy
 (b) potential energy
 (c) angular momentum
 (d) momentum.
82. An electron moves with uniform velocity v and enters a region of uniform magnetic field B . If v and B are parallel to each other, then the electron will
 (a) continue to move in the same direction
 (b) move in a direction perpendicular to B
 (c) move in a circular path
 (d) will not move.
83. The energy released per fission of a ${}_{92}\text{U}^{235}$ nucleus is nearly
 (a) 200 eV
 (b) 20 MeV
 (c) 200 MeV
 (d) 2000 eV.
84. Astigmatism can be corrected by using
 (a) bifocal lenses
 (b) concave spherical lenses
 (c) plane convex lenses
 (d) cylindrical lenses.
85. Blue colour of the sky is due to
 (a) scattering of light
 (b) dispersion of light
 (c) interference
 (d) sun emits more of blue light.

CHEMISTRY

86. Lanthanides and actinides resemble in
 (a) electronic configuration
 (b) oxidation state
 (c) ionization energy
 (d) formation of complexes.
87. Mg and Li are similar in their properties due to
 (a) same e/m ratio
 (b) same electron affinity
 (c) same group
 (d) same ionic potential.
88. How will you separate mixture of two gases?
 (a) fractional distillation technique
 (b) Graham's law of diffusion technique
 (c) osmosis
 (d) chromatography.
89. Which of these have no unit?
 (a) electronegativity
 (b) electron affinity
 (c) ionisation energy
 (d) excitation potential.
90. "The addition of unsymmetrical reagents to unsymmetrical alkenes occurs in such a way that the negative part of the addendum goes to that carbon atom of the double bond which carries lesser number of hydrogen atoms" is called by
 (a) Saytzeff rule
 (b) Markownikoff's rule
 (c) Kharasch effect
 (d) Anti-Saytzeff rule.
91. The molecule of CO_2 has angle 180° . It can be explained on the basis of
 (a) sp^3 hybridisation
 (b) sp^2 hybridisation
 (c) sp hybridisation
 (d) d^2sp^3 hybridisation.
92. Which of the following gas mixture is used by the divers inside the sea?
 (a) $\text{O}_2 + \text{He}$ (b) $\text{O}_2 + \text{Xe}$
 (c) $\text{O}_2 + \text{Ar}$ (d) $\text{O}_2 + \text{N}_2$
93. Photoelectric effect is maximum in
 (a) Cs (b) Na
 (c) K (d) Li.

94. Which of the following cuts ultraviolet rays?
 (a) soda glass (b) Crooke's glass
 (c) pyrax (d) none of these
95. Naphthalene is a/an
 (a) ionic solid (b) covalent solid
 (c) metallic solid (d) molecular solid
96. Acetone is mixed with bleaching powder to give
 (a) chloroform (b) acetaldehyde
 (c) ethanol (d) phosgene
97. 4.4 g of CO_2 contains how many litres of CO_2 at STP?
 (a) 2.4 litre (b) 2.24 litre
 (c) 44 litre (d) 22.4 litre
98. Aniline reacts with which of these to form Schiff base?
 (a) acetic acid (b) benzaldehyde
 (c) acetone (d) NH_3
99. Which of these do not contain – COOH group?
 (a) aspirin (b) benzoic acid
 (c) picric acid (d) salicylic acid
100. EDTA has coordination number
 (a) 3 (b) 4
 (c) 5 (d) 6
101. Write the IUPAC name of $\text{CH}_3\text{CH}_2\text{COOH}$.
 (a) ethyl formic acid
 (b) ethyl carboxylic acid
 (c) ethane methanoic acid
 (d) propanoic acid
102. Octane number can be changed by
 (a) isomerisation (b) alkylation
 (c) cyclisation (d) all of these
103. Gasoline has composition
 (a) $\text{C}_8 - \text{C}_{12}$ (b) $\text{C}_2 - \text{C}_5$
 (c) $\text{C}_6 - \text{C}_{11}$ (d) none of these
104. Oxygen molecule is
 (a) diamagnetic (b) paramagnetic
 (c) ferromagnetic (d) ferrimagnetic
105. $\Delta G = \Delta H - T\Delta S$ was given by
 (a) Faraday (b) Kirchoff
 (c) Einstein (d) Gibbs-Helmholtz.
106. Acetone reacts with Grignard reagent to form
 (a) 3° alcohol (b) 2° alcohol
 (c) ether (d) no reaction
107. Wood spirit is known as
 (a) methanol (b) ethanol
 (c) acetone (d) benzene
108. Colemnite is
 (a) $\text{Ca}[\text{B}_3\text{O}_4(\text{OH})_2] \cdot 2\text{H}_2\text{O}$
 (b) $\text{Ca}_2\text{B}_6\text{O}_{11} \cdot 5\text{H}_2\text{O}$
 (c) $\text{Ca}(\text{OH})_2$
 (d) $\text{Na}_2\text{B}_4\text{O}_7 \cdot 2\text{H}_2\text{O}$
109. Which of the following can't be used in Friedal Craft's reactions?
 (a) FeCl_3 (b) FeBr_2
 (c) AlCl_3 (d) NaCl
110. Which of the following metal has stable carbonates?
 (a) Na (b) Mg
 (c) Al (d) Si
111. What is the net charge on ferrous ion?
 (a) +2 (b) +3
 (c) +4 (d) +5
112. Oxidation number of carbon in CH_2Cl_2 is
 (a) 0 (b) 2
 (c) 3 (d) 5
113. Internal energy is
 (a) partly potential and partly kinetic
 (b) totally kinetic
 (c) totally potential
 (d) none of these.
114. Bredig arc method cannot be used to prepare colloidal solution of which of the following?
 (a) Pt (b) Fe
 (c) Ag (d) Au.
115. Which of the following oxides of nitrogen is solid?
 (a) NO_2 (b) N_2O
 (c) N_2O_3 (d) N_2O_5
116. Containers A and B have same gases. Pressure, volume and temperature of A are all twice that of B, then the ratio of number of molecules of A and B are
 (a) 1 : 2 (b) 2
 (c) 1 : 4 (d) 4

117. The ratio of area covered by second orbital to the first orbital.
- (a) 1 : 2 (b) 1 : 16
(c) 8 : 1 (d) 16 : 1.
118. Among them intensive property is
- (a) mass (b) volume
(c) surface tension (d) enthalpy.
119. Stainless steel is an alloy of
- (a) copper
(b) nickel and chromium
(c) manganese
(d) zinc.
120. Orlon has a unit
- (a) vinyl cyanide (b) acrolein
(c) glycol (d) isoprene.
121. Structure of H_2O_2 is
- (a) planar (b) non-planar
(c) linear (d) three-dimensional.
122. Triple point of water is
- (a) 273 K (b) 373 K
(c) 203 K (d) 193 K.
123. What is the % of acetic acid present in vinegar?
- (a) 6 - 10% (b) 70 - 80%
(c) 7 - 8% (d) 90 - 100%.
124. Nitrous oxide is known as
- (a) breathing gas
(b) laughing gas
(c) exercising gas
(d) laboratory gas.
125. Which of the following is the buffer solution?
- (a) $CH_3COOH + CH_3COONa$
(b) $CH_3COOH + CH_3COONH_4$
(c) $CH_3COOH + NH_4Cl$
(d) $NaOH + NaCl$.

INTELLIGENCE, LOGIC & REASONING

126. 'AWAKE' is KAWAE, then SLEEP is
- (a) EESLP (b) ESLEP
(c) PSLEE (d) ESELP.
127. A shepherd has 17 sheeps. All but 9 died, then how many sheeps he left?
- (a) 17 (b) 9
(c) 8 (d) 10.
128. Three cats kill 3 rats in 3 minutes. Then how much time would be taken to kill 100 rats by 100 cats?
- (a) 30 minutes (b) 3 minutes
(c) 100 minutes (d) 60 minutes.
- 4 5 6 7 8 9
129. If K L M N P Q, then decode MP QL MN 45
- (a) 68 95 67 KL
(b) 68 59 76 KL
(c) 95 76 87 PQ
(d) 95 67 87 QP.
130. As shoe is to Man,.....is to horse.
- (a) animal (b) hoof
(c) rider (d) man.
131. If CROP is coded as RCPO, then CASH will be coded as
- (a) ASCH (b) SHCA
(c) SHCR (d) ACHS.
132. The child..... at his mothers hand (select the correct word)
- (a) pulled (b) hauled
(c) tugged (d) none of these.
133. Plimsoll lines are those
- (a) lines on the equator
(b) lines marked on the ship to check overloading
(c) lines on the border
(d) LOC is also called Plimsoll lines.
134. During constant temperature, we feel colder on the day when the relative humidity is
- (a) 100% (b) 50%
(c) 75% (d) 25%.
135. Roaring Fourties are
- (a) roaring of forty lions
(b) blowing of forty hot winds in a desert
(c) blowing of wind from Mediterraneans
(d) winds blowing from 40° latitude in north and south.

ENGLISH LANGUAGE & COMPREHENSION

Directions (Q. 136 – 140) : Read the passage and answer the following questions.

It is said that once three old men set out on a journey together. One of them was bald, the second was a philosopher and the third was a barber. At nightfall they decided that each one of them should sit for watch turn by turn. The barber was to keep watch first of all, the philosopher after that and the bald man last of all. So, the philosopher and the bald man went to sleep and the barber was on watch. For some time he kept awake but in the end, he felt tired of it and he thought of some diversion as otherwise it was difficult for him to pass time. Then he took out the razor from his box and shaved the head of the philosopher. At the fixed time he woke up the philosopher and himself went to sleep. When the philosopher got up and felt his head all over, he was startled and said in surprise, "It was my turn but this wretched fellow has awakened bald man."

- 136.** Why did the philosopher get up?
 (a) He realised that his head was being shaved off
 (b) It was his turn to keep watch
 (c) He was awakened by the barber
 (d) He had a bad dream
- 137.** Who went to sleep first ?
 (a) The philosopher and the barber
 (b) The barber and the bald man
 (c) The bald man and the philosopher
 (d) The barber
- 138.** Why did the barber shave off the head of the philosopher?
 (a) The barber was jealous of the philosopher
 (b) The barber wanted to indulge in some fun
 (c) The barber wanted the philosopher to keep watch
 (d) The barber was feeling drowsy
- 139.** Which one of the following is the correct sequence decided upon the three to keep watch turn by turn ?
 (a) Barber–bald man–philosopher
 (b) Bald man–philosopher–barber
 (c) Barber–philosopher–bald man
 (d) Bald man–barber–philosopher
- 140.** Which one of the following statements is not correct ?
 (a) All the three men decided to keep watch one by one
 (b) The barber woke up the bald man
 (c) The head of the philosopher was shaved off
 (d) The philosopher was startled on feeling his head all over
- Directions (Q. 141 – 144) :** In each of the following 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.
- 141.** MOISTEN : DRENCH
 (a) Heat : Chill (b) Disregard : Ignore
 (c) Prick : Stab (d) Enclose : Confine
- 142.** INCUBATOR : INFANT
 (a) Hive : Bee
 (b) Greenhouse : Plant
 (c) Bullet : Revolver
 (d) Goalkeeper : Goalpost
- 143.** IMPASSIVELY
 (a) Impatiently (b) Respectfully
 (c) Without emotion (d) Rudely
- 144.** PALPABLE
 (a) Over-excited (b) Obvious
 (c) Unpredictable (d) Cleverness
- Directions (Q. 145 – 146) :** Each of the following sentences has a blank space and four words/groups of words are given after the sentence. Out of these four choices, select the word/group of words which you consider the most appropriate for the blank space and mark your choice on the Answer Sheet.
- 145.** Every human being is to the Almighty for his actions on earth.
 (a) faithful (b) approachable
 (c) accountable (d) responsible
- 146.** I don't know where he is but I could a guess.
 (a) suggest (b) attempt
 (c) hazard (d) estimate

Directions (Q. 147 – 148) : *In the following items each passage consists of six sentences. The first and the final sentence are given in the beginning. The middle four sentences in each have been removed and jumbled up. These are labelled P, Q, R and S.*

147. S₁ : The Portuguese built the magnificent city of Old Goa or Velha Goa on the banks of the Mandovi river.

S₆ : Whether it was precious stones and spices that were shipped to Europe or the Arabian horses that the Portuguese traders sold to the Vijayanagar rulers, all went through this port.

P : Portuguese commercial interests and religious orders, covering the area from the east coast of Africa to China and Japan, were centred here.

Q : This became one of the most important ports in India.

R : Old Goa was an important commercial centre.

S : It also became the nerve centre of the Portuguese empire in Asia.

The correct sequence should be

- (a) QSPR
- (b) RPSQ
- (c) QPSR
- (d) RSPQ

148. S₁ : Medieval India was renowned for its fabled wealth.

S₆ : Gradually the lands of Asia were colonized by the European powers—the Netherlands, Portugal, France and England—and brought under their cultural influence.

P : The Portuguese sailor Vasco da Gama finally discovered one in 1498.

Q : This established a trade route between Europe and Asia.

R : For centuries European nations looked for a sea route that could connect them directly to India.

S : He sailed around the Cape of Good Hope and reached Calicut.

The correct sequence should be

- (a) QPSR (b) RSPQ
- (c) QSPR (d) RPSQ

Directions (Q. 149 – 150) : *Each of the following Fifteen items consists of a word in capital letters, followed by four words or groups of words. Select the word or group of words that is furthest in meaning to the word in capital letters.*

149. RECTITUDE

- (a) Non-adherence to procedure
- (b) Dishonesty
- (c) Untidiness
- (d) Disrespect

150. ARCTITUDE

- (a) Respectful (b) Brave
- (c) Exciting (d) Modern