DUAL DEGREE B.Sc. (HONS.) PHYSICS - M. Sc. PHYSICS

PHYSICS

1. The unit 1 Nm^{-1} can also be written as :

(A) One ergs cm^{-1} (B) One erg cm^{-2}

(C) One J m^{-1} (D) One J m^{-2}

2. The velocity of the particle (v) at an instant t is given by $v = at + bt^2$. The dimensional formula of 'b' is :

(A) L (B) LT^{-1}

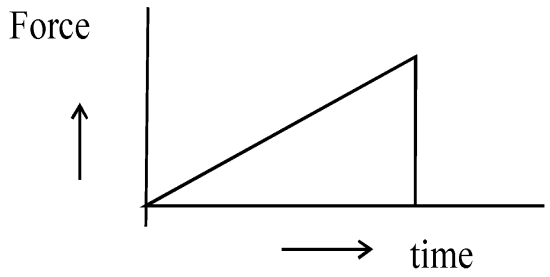
(C) LT^{-2} (D) LT^{-3}

3. A bird flies from (–3m, 4m, –3m) to (7m, –2m, –3m) in xyz coordinates. The bird displacement in unit vector is given by :

(A) $4i + 2j - 6k$ (B) $10i - 6j$

(C) $4i - 2j$ (D) $10i + 6j - 6k$

4. The area under the graph for the motion of a body shown below represents :



(A) Impulse (B) Momentum

(C) Acceleration (D) Energy

5. A mass of 10 kg is suspended by a spring balance. It is pulling a side by a horizontal spring so that it makes an angle of 60° with the vertical, the new reading of the balance is :

(A) 20 kg-wt (B) 10 kg-wt

(C) $10\sqrt{3}$ kg-wt (D) $20\sqrt{3}$ kg-wt

6. The M.I. of a flat annular ring of mass M, inner radius 'a' and outer radius 'b' about a perpendicular axis through its centre is :

(A) $\frac{1}{2}\mathrm{M}(b-a)^2$ (B) $\frac{1}{2}\mathrm{M}\left(b^2-a^2\right)$

(C) $\mathrm{M}\left(b^2+a^2\right)$ (D) $2\mathrm{M}\left(b^2-a^2\right)$

7. A satellite is moving in an orbit around the earth. The ratio of K.E. to P.E. is :

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

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

8. The density of a solid at normal pressure is ρ. When the solid is subjected to an excess pressure of P, the density changes to ρ′. If the bulk modulus of the solid is k, then the ratio ρ′/ρ is :

(A) $1+\frac{\mathrm{P}}{k}$ (B) $1+\frac{k}{\mathrm{P}}$

(C) $\frac{\mathrm{P}}{\mathrm{P}+k}$ (D) $\frac{k}{\mathrm{P}+k}$

9. If C_p and C_v denote the specific heats of nitrogen per unit mass at constant pressure and constant volume respectively, then :

(A) $C_p - C_v = 28R$ (B) $C_p - C_v = R/14$

(C) $C_p - C_v = R/28$ (D) $C_p - C_v = R$

10. A Carnot engine takes heat from a reservoir at 627°C and rejects heat to a sink at 27°C. Its efficiency will be :

(A) 3/5 (B) 1/3

(C) 2/3 (D) 1/2

11. The total internal energy of one mole of rigid diatomic gas is :

(A) 3/2 RT (B) 1/RT

(C) 5/2 RT (D) 9/2 RT

12. For an ideal gas RMS velocity at 120 K is 'v'. Find RMS velocity at 480 K.

(A) $4v$ (B) $2v$

(C) $v/2$ (D) $v/4$

13. When an oscillator completes 100 oscillations, its amplitude reduces to 1/3rd of its initial value A_0. Its amplitude at the end of 200 oscillations will be :

(A) $A_0/8$ (B) $A_0/6$

(C) $2A_0/3$ (D) $A_0/9$

14. The circular motion of the particle with constant speed is :

(A) Periodic but not SHM (B) SHM but not periodic

(C) Periodic as well as SHM (D) Neither periodic nor SHM

15. Two-point charges $8q$ and $-2q$ are located at $x = 0$ and $x = L$ respectively. The location of a point on the x axis at which the net electric field due to these two point charges is zero, is :

(A) 8 L (B) 4 L

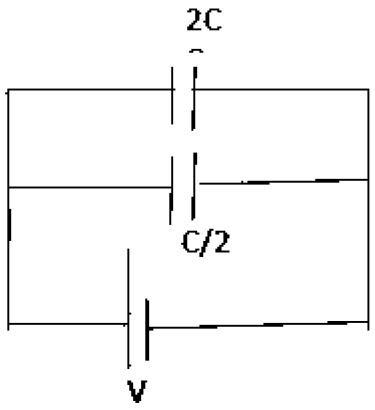
(C) 2 L (D) L/4

16. If a charge q is placed at the centre of the line joining two equal charges Q such that the system is in the equilibrium, then the value of small q is :

(A) Q/2 (B) $-Q/2$

(C) Q/4 (D) $-Q/4$

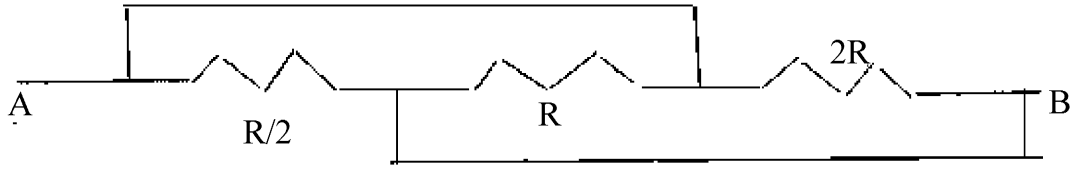
17. The two capacitors (having capacities 2C and C/2) are connected to a V volt cell in the circuit as shown in the figure. The total energy stored in the circuit is:



(A) $\frac{1}{4}CV^2$ (B) $\frac{5}{4}CV^2$

(C) $\frac{1}{2}CV^2$ (D) $2CV^2$

18. The net resistance across A and B in the given figure is :



(A) 3R (B) R

(C) 2R/7 (D) (3/2)R

19. Two parallel beam of positrons moving in the same direction will :

(A) Repel each other

(B) No interaction

(C) Attract each other

(D) Deflected normal to the plane containing the two beams

20. The distance at which the magnetic field on axis as compared to the magnetic field at the centre of the coil carrying current I and radius R is 1/8, would be :

(A) R (B) $\sqrt{2}$ R

(C) 2 R (D) $\sqrt{3}$ R

21. Two solenoids of equal number of turns have their length and radii in the same ratio. The ratio of self-inductance will be :

(A) 1 : 2 (B) 2 : 1

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

22. When the current changes from +2 A to −2 A in 0.05 second, an emf of 8.0 volts is induced in the coil. The self-inductance will be :

(A) 0.8 H (B) 0.1 H

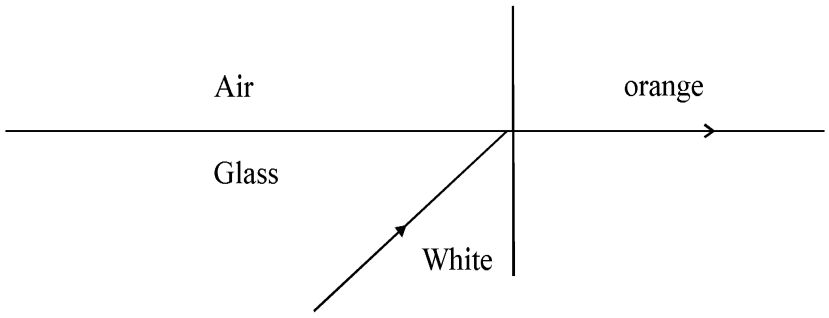
(C) 0.2 H (D) 0.4 H

23. The pressure exerted by an electromagnetic wave of intensity 'I' on a non-reflecting surface is (if c is speed of light) :

(A) Ic (B) Ic^2

(C) I/c (D) I/c^2

24. White light is incident on the interface of glass and air as shown in figure. If orange light is just totally internally reflected then the emerging ray in air contains :



(A) Red (B) Blue

(C) Green (D) All colours except orange

25. The angle of incidence at which reflected light is totally polarised for reflection from air to glass (Refractive Index, n) :

(A) $\sin^{-1}(n)$

(B) $\tan^{-1}(n)$

(C) $\sin^{-1}(1/n)$

(D) $\tan^{-1}(1/n)$

26. The work function of a substance is 4.0 eV. The longest wavelength of light that can cause photoelectron emission from this substance is approx :

(A) 540 nm (B) 400 nm

(C) 310 nm (D) 220 nm

27. For given K.E. which of the following has the smallest de Broglie wavelength ?

(A) Electron (B) Proton

(C) Neutron (D) Alpha particle

28. The ground state energy of hydrogen atom is -13.6 eV when its electron is in the 1st excited state. Its excitation energy is :

(A) Zero (B) 3.4 eV

(C) 6.8 eV (D) 10.2 eV

29. In gamma ray emission from a nucleus :

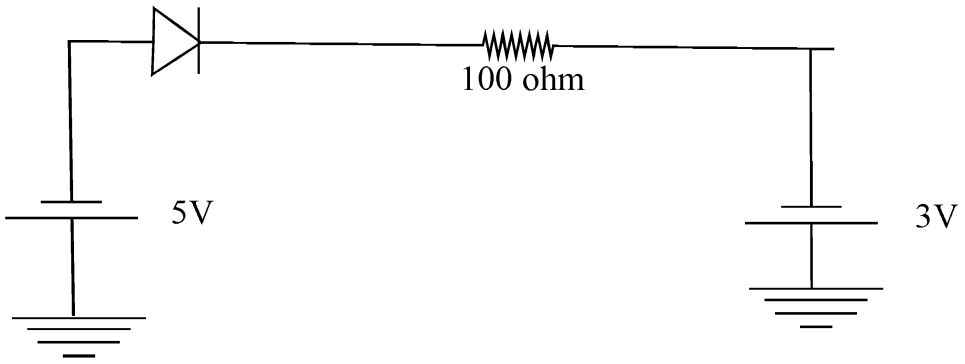
(A) Both the neutron number and proton number change

(B) There is no change in the proton number and the neutron number

(C) Only the neutron number changes

(D) Only the proton number changes

30. What is the current through an ideal p-n junction diode shown in figure ?



(A) Zero (B) 10 mA

(C) 20 mA (D) 50 mA

31. The dominant mechanism for motion of charge carrier in forward and reverse bias silicon p-n junctions are :

(A) drift in forward bias, diffusion in reverse bias

(B) drift in reverse bias, diffusion in forward bias

(C) diffusion in both forward and reverse bias

(D) drift in both forward and reverse bias

32. Which of the following statements is *not* correct in the case of light emitting diode ?

(A) It is heavily doped p-n junction.

(B) It emits light only when it is forward biased.

(C) It emits light only when it is reversed biased.

(D) The energy of light emitted is less than the energy gap of the semiconductor used.

33. The peak voltage in the output of a half wave rectifier fed with a sinusoidal signal without filter is 10 V. The dc component of the output voltage is :

(A) $10/\pi$

(B) $10/2\pi$

(C) $100/\pi$

(D) 10 V

CHEMISTRY

34. Solubility product of silver bromide is 5.0×10^{-13}. The quantity of potassium bromide molar mass taken as 120 g $mole^{-1}$ to be added to 1 L of 0.05 M solution of silver nitrate to start the precipitation of AgBr is :

(A) 5.0×10^{-12} g (B) 6.0×10^{-12} g

(C) 2.0×10^{-12} g (D) 1.2×10^{-9} g

35. Vinegar is the trade name for :

(A) chloroform (B) acetic acid

(C) phenol (D) carbon tetrachloride

36. Solid carbon dioxide is used :

(A) as a drying agent (B) as a refrigerant

(C) as an antiseptic (D) as a bleaching agent

37. Nylon-66 is an example of :

(A) polystyrene (B) polyisoprene

(C) polypropylene (D) polyamide

38. The polymer used for the manufacture of good quality non-breakable crockery is :

(A) polyethylene (B) PVC

(C) Buna-S (D) MF resin

39. Gibbs' phase rule is :

(A) $F + P = C + 2$ (B) $F - C = P + 2$

(C) $F - P = C + 2$ (D) $P + C = F + 2$

40. At congruent melting point, Zn-Mg system is a :

(A) one-phase system (B) three-phase system

(C) one-component system (D) two-component system

41. What is the change in the chemical potential of the substance when the partial pressure of an ideal gas falls from 1.00 bar to 0.50 bar ?

(A) -1717.3 (B) -1818.3

(C) 1717.3 (D) 1818.3

42. If enthalpies of formation of ethene, carbon dioxide and water at 25°C and one atmosphere pressure are 52, -394 and -286 kJ/mol respectively, then enthalpy of combustion of ethene will be :

(A) $+141.2$ kJ/mol (B) $+1412$ kJ/mol

(C) -141.2 kJ/mol (D) -1412 kJ/mol

43. Identify the correct statement for change of Gibbs' energy for a system (ΔG_{system}) at constant temperature and pressure :

(A) If $\Delta G_{system} < 0$, the process is not spontaneous.

(B) If $\Delta G_{system} > 0$, the process is spontaneous.

(C) If $\Delta G_{system} = 0$, the system has attained equilibrium.

(D) If $\Delta G_{system} = 0$, the system is still moving in a particular direction.

44. The oxidation of oxalic acid by acidified $KMnO_4$ is catalysed by :

(A) $H_2SO_4^-$ (B) H^+

(C) Mn^{2+} (D) $C_2O_4^{2-}$

45. Oxidation state of Fe in Fe_3O_4 is :

(A) 5/4 (B) 4/5

(C) 3/2 (D) 8/3

46. The oxidation state of sulphur in the anions SO_3^{2-}, $S_2O_4^{2-}$ and $S_2O_6^{2-}$ follow the order :

(A) $S_2O_4^{2-} < SO_3^{2-} < S_2O_6^{2-}$

(B) $S_2O_6^{2-} < SO_3^{2-} < S_2O_4^{2-}$

(C) $S_2O_6^{2-} < S_2O_4^{2-} < SO_3^{2-}$

(D) $S_2O_4^{2-} < SO_3^{2-} < S_2O_6^{2-}$

47. Rusting of iron is catalysed by :

(A) H^+ (B) O_2

(C) Zn (D) Fe

48. The oxide which *cannot* act as reducing agent :

(A) CO_2 (B) ClO_2

(C) NO_2 (D) SO_2

49. Enzymes that utilize ATP in phosphate transfer require an alkaline earth metal (M) as the cofactor. M is :

(A) Sr (B) Be

(C) Mg (D) Ca

50. The solubility in water of sulphate down the Be group is Be > Mg > Ca > Sr > Ba. This is due to :

(A) Decreasing lattice energy

(B) High heat of solvation for smaller ions like Be^{2+}

(C) Increase in melting points

(D) Increasing molecular weight.

51. Reverse osmosis is generally used for desalination of brackish and sea water. The process removes :

(A) Dissolved ionic salts only

(B) Dissolved non-ionic compounds only

(C) Colloidal impurities only

(D) All of the above

52. The number of sigma and pi bonds in pent-2-en-4-yne is :

(A) 13 sigma bonds and no pi bond

(B) 10 sigma bonds and 3 pi bonds

(C) 8 sigma bonds and 5 pi bonds

(D) 11 sigma bonds and 2 pi bonds

53. The repeating unit in a silicone is :

(A) RSiO (B) R_2SiO

(C) R_3SiO_2 (D) RSi_2O

54. Among the following compounds, the one that is most reactive towards electrophilic nitration is :

(A) Benzoic acid (B) Nitrobenzene

(C) Toluene (D) Benzene

55. Which of the following is expected to exhibit optical isomerism ?

(A) cis-$[Pt(NH_3)_2Cl_2]$ (B) trans-$[Pt(NH_3)_2Cl_2]$

(C) cis-$[Co(en)_2Cl_2]^+$ (D) trans-$[Co(en)_2Cl_2]^+$

56. Crystal field stabilization energy for high spin d^4 octahedral complex is :

(A) $-1.8\Delta_0$

(B) $-1.6\Delta_0 + P$

(C) $-1.2\Delta_0$

(D) $-0.6\Delta_0$

57. Coordination number of Ni in $[Ni(C_2O_4)_3]^{4-}$ is :

(A) 3 (B) 6

(C) 4 (D) 2

58. Which of the following undergoes nucleophilic substitution exclusively by S_N1 mechanism ?

(A) Ethyl chloride

(B) Isopropyl chloride

(C) Chlorobenzene

(D) Benzyl chloride

59. Reaction of phenol with chloroform in presence of dilute sodium hydroxide finally introduces which one of the following functional group ?

(A) –COOH (B) $-CHCl_2$

(C) –CHO (D) $-CH_2Cl$

60. The heating of phenyl methyl ether with HI produces :

(A) iodobenzene (B) phenol

(C) benzene (D) ethyl chloride

61. Which of the following compounds can be used as antifreeze in automobile radiators ?

(A) Methyl alcohol (B) Glycol

(C) Nitrophenol (D) Ethyl alcohol

62. Number of isomeric alcohols of molecular formula $C_6H_{14}O$ which gives positive iodoform test is :

(A) 3 (B) 4

(C) 5 (D) 2

63. The oxidation of benzene by V_2O_5 in the presence of air produces :

(A) Maleic anhydride (B) Benzoic acid

(C) Benzaldehyde (D) Benzoic anhydride

64. The electrolytic reduction of nitrobenzene is strongly acidic medium produces :

(A) Azobenzene (B) Aniline

(C) P-aminophenol (D) Azoxybenzene

65. Which of the following hormones is produced under the conditions of stress which stimulate glycogenolysis in the liver of human beings ?

(A) Thyroxin (B) Insulin

(C) Adrenaline (D) Estradiol

66. The non-essential amino acid among the following is :

(A) Lysine (B) Valine

(C) Leucine (D) Alanine

MATHEMATICS

67. If A set P has 5 elements and Q has 6 elements, the number of one-one functions from set P to Q is :

(A) 30 (B) 120

(C) 720 (D) None of these

68. Value of $\sin\left(\sin^{-1} 5\right)$ is :

(A) $2\pi - 5$ (B) $5 - 2\pi$

(C) $2\pi + 5$ (D) $\pi + 5$

69. The total number of non-empty relations that can be defined from P to Q, where P has 7 elements and Q has 8 elements :

(A) 2^{56} (B) 2^{56-1}

(C) 2^7 (D) 55

70. If $f(x) = \left(|x-1| + |x-2|\right)$, then $f(x)$ is :

(A) Differentiable at $x = 1$ and continuous at $x = 1$ and $x = 2$

(B) Continuous and differentiable at $x = 1, 2$

(C) Differentiable at $x = 1$ or $x = 2$

(D) Continuous at $x = 1$ and $x = 2$

71. Let S = {1, 2, 3...100}. The number of non-empty subsets A of S such that the product of elements in A is even :

(A) $2^{50}(2^{50} + 1\}$

(B) $2^{50}(2^{50} - 2\}$

(C) $2^{50}(2^{100} - 1\}$

(D) $2^{50}(2^{50} - 1\}$

72. If P, Q, R are angles of a triangle, then the value of

$$\Delta = \begin{vmatrix} \sin^2 P & \cot P & 1 \\ \sin^2 Q & \cot Q & 1 \\ \sin^2 R & \cot R & 1 \end{vmatrix} \text{ is :}$$

(A) 1 (B) 2

(C) 0 (D) None of these

73. If M is the square matrix of order p, then :

(A) $|\text{adj } 2M| = |2M|^p$

(B) $|\text{adj } 2M| = |2M|^{p-1}$

(C) $|\text{adj } 2M| = |2M|^{p-2}$

(D) $|\text{adj } 2M| = |2M|^{p-3}$

74. Total number of terms in the expansions of $(x+y+z)^{100}$ is :

(A) 102 (B) 10100

(C) 101 (D) 5050

75. The 4th term from end in the expansion of $\left(\frac{x^3}{2} - \frac{2}{x^2}\right)^9$ is :

(A) $\frac{672}{x^2}$

(B) $-\frac{672}{x^3}$

(C) $-\frac{672}{x^4}$

(D) $\frac{672}{x^3}$

76. The condition $p \Rightarrow q$ means that :

(A) q if p

(B) p only if q

(C) p is sufficient for q

(D) All of the above

77. If $y(x) = x^{1000} + x^{999} + x^{998} + ...x + 1$, then $\frac{dy}{dx}$ at $x = 1$ is :

(A) 500500 (B) 500050

(C) 500005 (D) None of these

78. Variance of the first n natural numbers is :

(A) $\sqrt{\frac{n^2 - 1}{12}}$

(B) $\sqrt{\frac{n^2 - 1}{6}}$

(C) $\frac{n^2 - 1}{12}$

(D) $\frac{n^2 - 1}{6}$

79. Identify which one of the differential equation is *not* linear ?

(A) $\frac{dy}{dx} + y = 0$ (B) $\frac{dy}{dx} + \sin x = 0$

(C) $\frac{dy}{dx} - e^y = 0$ (D) $\frac{dy}{dx} + e^x = 0$

80. A line makes equal angles with coordinate axis. Direction cosine of lines are :

(A) $\pm(1,1,1)$

(B) $\pm\left(\frac{1}{\sqrt{3}},\frac{1}{\sqrt{3}},\frac{1}{\sqrt{3}}\right)$

(C) $\left(\frac{1}{\sqrt{3}},\frac{1}{\sqrt{3}},\frac{1}{\sqrt{3}}\right)$

(D) $\pm\left(\frac{1}{3},\frac{1}{3},\frac{1}{3}\right)$

81. If E and F are two independents events such that P(E) = p, P(F) = $2p$ and P (Exactly one of E; F) = $\frac{5}{9}$, then p is :

(A) $\frac{1}{3},\frac{5}{24}$ (B) $\frac{2}{3},\frac{5}{12}$

(C) $\frac{1}{3},\frac{5}{12}$ (D) $\frac{1}{3},\frac{1}{12}$

82. For a square matrix A in matrix equation AX = B :

(A) If $|A|\neq 0$, then there exists unique solution

(B) If |A| = 0 and (adj A) B $\neq$ 0 there exists no solution

(C) If |A| = 0 and (adj A) B = 0, then system may or may not be consistent

(D) All of the above

83. If (a,b,c) is the image of the point $(1,-2,3)$ in the line $\frac{x+1}{2}=\frac{y-3}{-2}=\frac{z}{-1}$, then $a + b + c$:

(A) 3 (B) –1

(C) 1 (D) 2

84. Projection of $\vec{p}$ along $\vec{q}$ is :

(A) $\frac{\vec{p}\times\vec{q}}{|\vec{q}|}$

(B) $\frac{\vec{p}\,.\,\vec{q}}{|\vec{p}|}$

(C) $\frac{\vec{p}\,.\,\vec{q}}{|\vec{q}|}$

(D) $\frac{\vec{p}\times\vec{q}}{|\vec{p}|}$

85. The smallest positive integer n for which $n! < \left(\frac{n+1}{2}\right)^n$ holds :

(A) 2 (B) 3

(C) 4 (D) 1

86. In an examination there are 3 multiple choice questions and each question has 4 choices, then in how many ways a student can fail to get all answers correct ?

(A) 11 (B) 12

(C) 27 (D) 63

87. No. of signals can be sent by 6 flags of different colors taking one or more at a time :

(A) 956 (B) 2956

(C) 1956 (D) 6!

88. The image of the point (1, 6, 3) in the line $\frac{x}{1}=\frac{y-1}{2}=\frac{z-2}{3}$ is :

(A) (0, 7, 1) (B) (1, 0, 7)

(C) (7, 0, 1) (D) (1, 7, 0)

89. If E and F are independent events such that $0 < p(E), p(F) < 1$, then which of the following is *not* correct ?

(A) E and F are mutually exclusive

(B) E and F′ are independent

(C) E′ and F are independent

(D) E′ and F′ are independent

90. The function $\cos|x+1|$ is :

(A) not continuous everywhere (B) differentiable everywhere

(C) not differentiable everywhere (D) None of these

91. Maximum value of $3\cos x + 4\sin x + 8$ is :

(A) 13 (B) 33

(C) 5 (D) 15

92. Which of the following is *not* correct ?

(A) Sum of deviation of items from their mean is zero.

(B) Median is measure of magnitude rather than position.

(C) Extreme value does not affect the meadian as strongly as they affect mean.

(D) Mode is not affected by the presence of extremely large or small items.

93. The area of the region bounded by the curve $2x = y^2$ and the straight line $x - y = 4$ is :

(A) $\frac{28}{3}$ sq. units (B) 18 sq. units

(C) $\frac{46}{3}$ sq. units (D) $\frac{128}{3}$ sq. units

94. The value of $\int_0^1 e^x (x-1)^n \, dx = 16 - 16e$. Find n, where, $n \in$ N.

(A) 3 (B) 2

(C) 4 (D) 5

95. The solution of differential equation $2x\frac{dy}{dx} - y = 3$ represents a family of :

(A) straight lines (B) circles

(C) parabolas (D) ellipses

96. Negation of $2 + 3 = 5$ and $8 < 10$ is :

(A) $2 + 3 \neq 5$ or $8 \geq 10$ (B) $2 + 3 \neq 5$ or $8 > 10$

(C) $2 + 3 \neq 5$ and $8 \geq 10$ (D) $2 + 3 \neq 5$ and $8 < 10$

97. Find the remainder when 27^{40} is divided by 12.

(A) 9 (B) 10

(C) 11 (D) 8

98. The greatest value of $\sin x \cos x$ is :

(A) 1 (B) $\frac{1}{2}$

(C) 2 (D) $\sqrt{2}$

99. Equation of the normal to the curve $y = \sin x$ at (0, 0) is :

(A) $x + y = 0$ (B) $x = 0$

(C) $y = 0$ (D) $x - y = 0$

100. $\text{Lim}_{n\to\infty}\left(\frac{n!}{n^n}\right)^{\frac{1}{n}}$ is :

(A) $\frac{2}{e}$ (B) e

(C) $\frac{1}{e}$ (D) $2e$

GENERAL APTITUDE

101. Direction : Study the following information carefully and answer the question given below :

Eight points – A, B, C, D, E, F, G and H, are marked on different positions in a plane such that the ratio of the distances between points G and B, and points B and E is 2 : 3. C is 10 m to the north of F, which is 5 m to the west of A. D is 10 m to the south of B and 15 m to the east of F. The ratio of distances between points A and D and points G and B is 1 : 1. B is to the west of E. Point H is to the north of A and to the west of G.

Four of the following five are alike such that the distance between two points is same and hence form a group. Which of the following is the one that *does not* belong to the group ?

(A) GH

(B) FC

(C) GB

(D) AF

102. Complete the series :

2, 17, 45, 99, 205, ?

(A) 415

(B) 451

(C) 453

(D) 455

103. **Direction :** Study the following information carefully and answer the question given below :

In a combined family Mayank and Suresh are brothers. Both have one-one son and daughter each. Further information of their family is given below :

Amar is brother-in-law of Manjesh and husband of Amal's mother. Manjesh is unmarried son of Mayank. Vaishnavi's father, Vikram is son of Seema who is mother-in-law of Sakshi. Mainak's grandmother, Kavita is mother-in-law of Amar. Madhuri and Manjesh are children of Mayank and Vikram and Tanuja are their cousins. Sakshi has two daughters and Madhuri has two sons. Juhi and Vaishnavi are siblings.

Who among the following is the father of Vaishnavi ?

(A) Vikram (B) Amal

(C) Amar (D) Mainak

104. **Direction :** Read the following information carefully and answer the question given below:

Four friends – Ram, Laxman, Bharat and Shatrughan were having a conversation. They were expressing their thoughts in a coded language :

Ram says, "le po ki ba" when he wants to convey that "friends make life live". Laxman says, "te ki mo ba" when he wants to convey that "without friends life impossible". Bharat says, "lo mo se te" when he wants to convey that "without trouble gain impossible". Shatrughan says, "st ba po lo" when he wants to convey that "life make trouble joy".

Which of the following is most probably the code for "life gives joy"?

(A) st lo ba (B) ba fo st

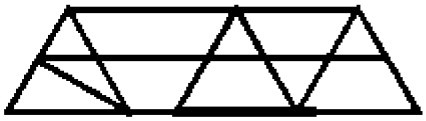
(C) le po st (D) ba fo go

105. Aesop : Fable :: Homer : .....

(A) Temple (B) Donkey

(C) Epic (D) Greece

106. How many triangles are there in the given figure ?



(A) 7

(B) 8

(C) 9

(D) 11

107. Direction : Read the following information carefully and answer the question given below :

8 persons from A to H are sitting around a square table such that 4 persons sit at each of the corners while the rest 4 sit at the middle of the sides. The ones sitting at the corners are facing inside while the rest are facing outside. The persons whose name starts with consecutive letters do not sit adjacent. B sits second to the right of A, who is on the immediate left of C. F sits on the immediate right of D, who sits at one of the corners. At least one person sits between C and G.

Find the odd one out :

(A) E

(B) F

(C) G

(D) H

108. **Direction :** In this question, on the basis of the information given in the statement, you have to assume everything in the statement to be true, then decide which of the suggested courses of action logically follow(s) for pursuing.

Give answer—

(a) if only I follows.

(b) if only II follows.

(c) if either I or II follows.

(d) if neither I nor II follows.

(e) if both I and II follow.

Statement—With the onset of monsoon all the hospitals are getting increased number of patients due to various epidemics.

Courses of Action—

I. Civic authorities should educate the public the need for observing minimum required hygiene.

II. Civic authorities should make arrangements to equip the hospitals with required medicines and other facilities.

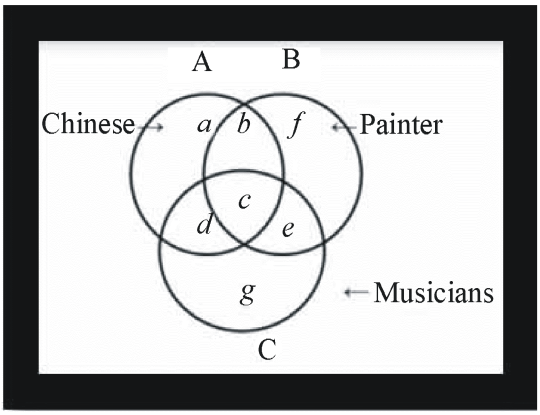
(A) a

(B) b

(C) c

(D) d

109. In the figure below there are three intersecting circles. Each represents certain section of people different region marked. Read the statement in question and choose the letter of the region which correctly represents the statement.



Painter who are neither Chinese nor musician.

(A) b

(B) c

(C) f

(D) g

110. Umesh is taller than Satish, Suresh is shorter than Neeraj but taller than Umesh. Who is the tallest among them ?

(A) Umesh

(B) Suresh

(C) Satish

(D) Neeraj

GENERAL ENGLISH

111. Direction : Which of the phrases given below should replace the phrase given in bold in the following sentence to make the sentence grammatically correct ?

As soon as I opened the front door of my house, **than I smelled** the distinctive aroma of fresh coffee.

(A) then I smelled
(B) that I smelled
(C) I smelled
(D) I smell

112. The four sentences (labelled 1, 2, 3, 4) given below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequence of the order of the sentences and key in the sequence of the four numbers as your answer.

1. Metaphors may map to similar meanings across languages, but their subtle differences can have a profound effect on our understanding of the world.
2. Latin scholars point out carpe diem is a horticultural metaphor that, particularly seen in the context of its source, is more accurately translated as "plucking the day," evoking the plucking and gathering of ripening fruits or flowers, enjoying a moment that is rooted in the sensory experience of nature, unrelated to the force implied in seizing.
3. The phrase carpe diem, which is often translated as "seize the day" and its accompanying philosophy, has gone on to inspire countless people in how they live their lives and motivates us to see the world a little differently from the norm.
4. It's an example of one of the more telling ways that we mistranslate metaphors from one language to another, revealing in the process our hidden assumptions about what we really value.

(A) 2314
(B) 3241
(C) 3214
(D) 1423

113. Fill in the blank :

Their country has no mineral resources to speak _____.

(A) of (B) in

(C) on (D) with

114. **Direction :** Select the option which contains the part of the sentence which has an error (spelling, grammatical or contextual) :

Today, all students (A)/of my class are (B)/invited to dinner (C)/given to bid farewell to the out-going students. (D)

(A) Today, all students

(B) of my class are

(C) invited to dinner

(D) given to bid farewell to the out-going students.

115. **Direction :** This question has two blanks, each blank indicating that something has been omitted. Choose the set of words for each blank that best fits in the context of the sentence :

Buildings must _____ be examined and certified for safety, and those that fail to _____ to the NBC must be demolished.

(A) surely, stick (B) intermittently, respect

(C) intensely, purview (D) periodically, conform

116. Find the correctly spelt word :

(A) Kareoke (B) Keraoke

(C) Kereoke (D) Karaoke

117. In this question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.

All Greek to me

(A) the new person in a group gets the most attention

(B) learning a new language is very difficult

(C) saying that one does not understand something that is said or written

(D) everything is new when one is in a new country

118. Out of the four alternatives choose the one which can be substituted for the given words/sentence in the question :

To disorder or disarrange (someone's hair), typically by running one's hands through it

(A) To tangle (B) To crumple

(C) To ruffle (D) To crease

119. Find the antonym of **GAINSAY** :

(A) Regret (B) Own

(C) Prudent (D) Deny

120. Find the synonym of **EXIGENT** :

(A) Urgent (B) Treatise

(C) Miser (D) Expedient