



1. The antonym of 'dubious'
 - (a) Unpleasant
 - (b) Gracious
 - (c) Dexterous
 - (d) Definite

2. The singular of 'phenomena' is
 - (a) Phenomenis
 - (b) Phenomenanon
 - (c) Phenamena
 - (d) Phenomenon

3. Choose the correct option for the underlined part
A pair of shoes have been purchased by me.
 - (a) has been
 - (b) has being
 - (c) would been
 - (d) no improvement

4. Choose the correct alternative out of the four given
The thieves _____ in a stolen jeep.
 - (a) made out
 - (b) made up
 - (c) made off
 - (d) made over

5. Bread and butter _____ there on the table.

- (a) was
- (b) were
- (c) are
- (d) have



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6. There were _____ books in his bag.

- (a) little
- (b) a little
- (c) the little
- (d) few

7. He is the friend _____ I trust the most.

- (a) whose
- (b) which
- (c) whom
- (d) who



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8. Choose the correct sentence

- (a) My son is desirous on joining the army
- (b) My son is desirous in joining the army
- (c) My son is desirous for joining the army
- (d) My son is desirous of joining the army

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9. The passive voice of
'Do not insult the weak.'
- (a) The weak is not insulted
 - (b) The weak is ~~not~~ to be insulted
 - (c) Let the weak not insulted
 - (d) Let the weak not be insulted
10. We must adopt ourselves _____ our circumstances.
- (a) with
 - (b) in
 - (c) to
 - (d) by
11. He said that he did not remember _____ a more enjoyable movie.
- (a) seen
 - (b) saw
 - (c) having seen
 - (d) seeing
12. The indirect speech of
He said, "I met this man two days ago."
- (a) He said that I had met this man two days ago
 - (b) He said that I met that man two days before
 - (c) He said that he had met this man two days ago
 - (d) He said that he had met that man two days before

13. He fled _____ he should be killed.
- (a) lest
 - (b) otherwise
 - (c) while
 - (d) because
14. _____ he is mad, _____ he feigns madness.
- (a) neither, or
 - (b) either, or
 - (c) neither, either
 - (d) either, neither
15. The passive voice of
'The candidates are submitting the answer sheets to the invigilators.'
- (a) The invigilators are being submitted the answer sheets by the candidates
 - (b) The answer sheets to the invigilators are submitted by the candidates
 - (c) The answer sheets are being submitted to the invigilators by the candidates
 - (d) The answer sheets are to be submitted to the invigilators
16. Congratulations on passing your exam. You _____ be very pleased.
- (a) should
 - (b) must
 - (c) can
 - (d) shall

17. He cut his finger _____ a knife.

- (a) with
- (b) by
- (c) from
- (d) into

18. The antonym of 'erudite' is

- (a) ignorant
- (b) crude
- (c) boring
- (d) sophisticated

19. Fear of being enclosed in a small closed space is

- (a) agoraphobia
- (b) claustrophobia
- (c) xenophobia
- (d) paranoia

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20. Talking in one's sleep is

- (a) somniloquence
- (b) secant
- (c) sophistry
- (d) sequacious

21. I will find you _____ you are.

- (a) wherefore
- (b) therefore
- (c) where
- (d) wherever

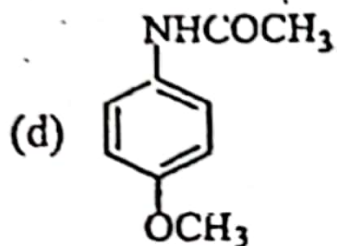
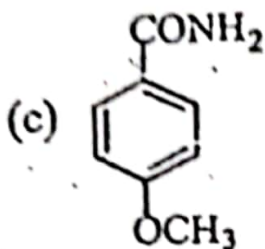
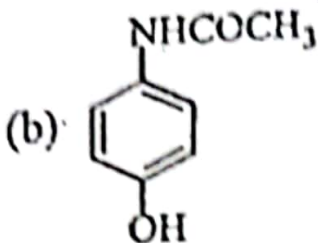
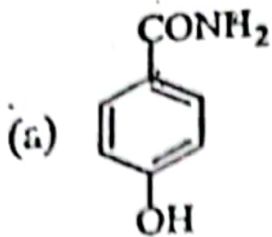
22. It is very difficult to overcome the _____ of habits such as smoking and taking drugs.
- (a) stupidity
 - (b) tenacity
 - (c) insecurity
 - (d) ravages
23. The clothes Nafees, the famous designer, designs for men are conservative, but her fashions for women are more
- (a) flamboyant
 - (b) subtle
 - (c) tasteful
 - (d) expensive
24. The antonym of 'misanthrope' is
- (a) Philanthrope.
 - (b) Anthrope
 - (c) Anthropephile
 - (d) Anthropologist
25. The synonym of 'vociferous' is
- (a) loud
 - (b) calm
 - (c) honest
 - (d) bold

Section II – Chemistry

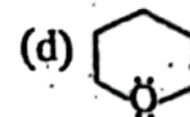
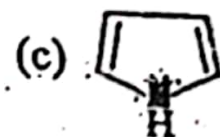
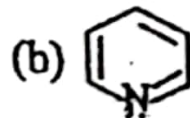
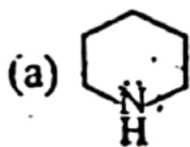
26. The most stable dihalides in the carbon family is
- (a) CX_2
 - (b) SnX_2
 - (c) SiX_2
 - (d) PbX_2
27. Which of the following complexes is optically active?
- (a) Trans- $[Co(NH_3)_4Cl_2]$
 - (b) Trans- $[Co(NH_3)_2Cl_4]^+$
 - (c) Cis- $[Co(en)_2Cl_2]$
 - (d) Trans- $[Co(en)_2Cl_2]$
28. The type of back bonding involved in BF_3 molecule is
- (a) $p\pi-p\pi$
 - (b) $d\pi-p\pi$
 - (c) $d\pi-d\pi$
 - (d) $d\pi-\pi^*$
29. Which of the following has a tendency to form oxo ion?
- (a) Nd
 - (b) U
 - (c) Gd
 - (d) Dy

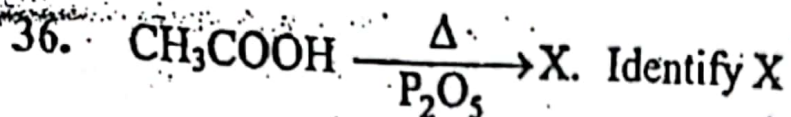
30. The number of lone pair of electrons in XeF_2 , XeF_4 and XeF_6 molecules respectively, are
- (a) 2, 3, 1
 - (b) 1, 2, 3
 - (c) 3, 2, 1
 - (d) 1, 3, 2
31. The number of P-P bonds in the structure of white phosphorous is
- (a) 1
 - (b) 3
 - (c) 4
 - (d) 6
32. The structures of SF_4 and ClF_3 molecules respectively, are
- (a) Tetrahedral and triangular
 - (b) T-shaped and T-shaped
 - (c) See-saw and T-shaped
 - (d) T-shaped and See-saw
33. Which of the following does not obey 18 electron rule?
- (a) $\text{Cr}(\text{CO})_6$
 - (b) $\text{Fe}(\text{CO})_5$
 - (c) $\text{V}(\text{CO})_6$
 - (d) $\text{Mn}_2(\text{CO})_{10}$

34. The correct structure of paracetamol is



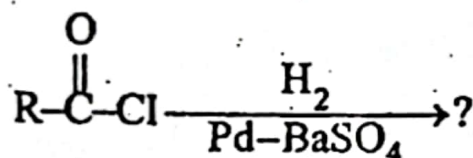
35. The strongest base is





- (a) CH_3COCH_3
- (b) CH_3CHO
- (c) $(\text{CH}_3\text{CO})_2\text{O}$
- (d) CH_4

37. What is the product in the following reaction



- (a) RCH_2OH
- (b) RCOOH
- (c) RCHO
- (d) RCH_3

38. LiAlH_4 converts acetic acid into

- (a) Acetaldehyde
- (b) Ethyl alcohol
- (c) Ethane
- (d) Methane

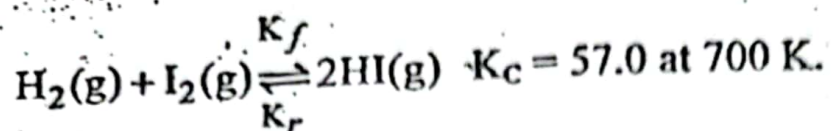
39. Iodoform can be used as
- (a) Anaesthetic
 - (b) Antiseptic
 - (c) Analgesic
 - (d) Antifebrin
40. Caprolactam is a monomer for the synthesis of
- (a) Nylon 6
 - (b) Nylon 6, 6
 - (c) Dacron
 - (d) Teflon
41. The double helical structure of DNA is due to
- (a) van der Waals' forces
 - (b) Dipole-dipole interaction
 - (c) Hydrogen bonding
 - (d) Electrostatic attractions



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42. The equilibrium constant K_c for the reaction of hydrogen with iodine is 57.0 at 700 K and the reaction is endothermic ($\Delta E = 9 \text{ kJ}$)



Which of the following statement is true

- (a) $K_f = K_r$ at 700 K
 - (b) Catalyst will increase the rate constant K_f and decrease the rate constant K_r
 - (c) K_c is unaffected by the addition of catalyst
 - (d) As the temperature increases K_f decreases by more than K_r decreases
43. What is the molality of the solution of citric acid in 50 gram of acetic acid showing a boiling point elevation of 1.76°C and having $K_b = 3.07^\circ\text{C kg/mol}$
- (a) 1.76 m
 - (b) 3.07 m
 - (c) 0.573 m
 - (d) 5.403 m



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44. Let x_1 and x_2 be the mole fractions of solvent and solute respectively, p_1 be the vapour pressure of solvent above the solution. Also, p vapour pressure of the pure solvent. Then for an ideal solution, the relation is false

(a) $p_1 = p_1^0 x_1$

(b) $\frac{p_1^0 - p_1}{p_1^0} = x_2$

(c) $\Delta_{\text{mix}} H = 0$

(d) $\Delta_{\text{mix}} V \neq 0$

45. Following statement is not true for zeolites

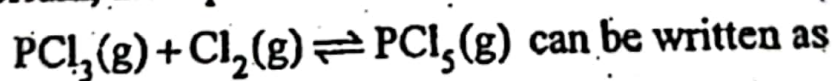
(a) Their structure is a 3-dimensional Al-O-Si framework

(b) They are microporous aluminosilicates

(c) They are used as catalysts in petrochemical industries

(d) Their catalytic activity is independent of the size and shape of reactant and product molecules

46. One mole of $\text{PCl}_3(\text{g})$, 2 mol $\text{Cl}_2(\text{g})$, 3 mol $\text{PCl}_5(\text{g})$ are mixed in a closed vessel to attain chemical equilibrium. If x moles of PCl_5 are found at equilibrium, the equilibrium constant K_c of the reaction



(a) $K_c = \frac{x}{(1-x)(2-x)}$

(b) $K_c = \frac{x}{(1+x)(2+x)}$

(c) $K_c = \frac{x}{(4-x)(5-x)}$

(d) $K_c = \frac{x+3}{(1-x)(2-x)}$

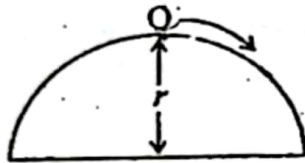
47. An element M (atomic mass = 75) combines with element X (atomic mass = 25) to form a compound that contains 75% M (w/w). The formula of the compound is
- (a) MX
 - (b) MX₃
 - (c) M₂X
 - (d) M₃X
48. A first order reaction is 90% complete after 40 min., what will be the half-life of reaction
- (a) 12.03 min.
 - (b) 11.03 min.
 - (c) 10.03 min.
 - (d) 9.02 min.
49. What is the unit of $\left(\frac{\partial U}{\partial S}\right)_V$?
- (a) Joule/mole
 - (b) Joule/mole . K
 - (c) K
 - (d) Joule
50. The reaction between equal moles of 'A' and 'B' is of first order in 'A' and is of first order in 'B'. Then, the following is wrong
- (a) $-d[A]/dt = k[A]$
 - (b) Half-life of 'A' = Half-life of 'B'
 - (c) The overall reaction is of second order
 - (d) The rate of reaction will depend on temperature

Section III – Physics

51. A wave $y(x, t) = 0.03 \sin \pi (2t - 0.01)x$ travels in a medium. Here x is metre. The instantaneous phase difference between the two points separated by 25 cm is

- (a) $\pi/800$
- (b) $\pi/400$
- (c) $\pi/200$
- (d) $\pi/100$

52. The height at which a body leaves the vertical circle is



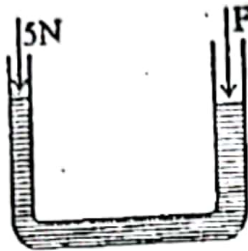
- (a) $\frac{2}{3}r$
- (b) $\frac{3}{2}r$
- (c) $3r$
- (d) r

53. A thin converging lens of power 12.5 D is held 10 cm above a page print. The observer's eye is 75 cm above the page and his near point is 25 cm from his eye. Which of the following is incorrect?

- (a) The print is clearly seen
- (b) The print is seen inverted
- (c) The print is magnified four times
- (d) The print is not clearly seen

54. A long wire carries d.c. current. It is bent into a circle of one turn and magnetic field at the centre of the coil is B . It is then bent into a circular loop of n turns. Then the magnetic field at the centre of the coil will be given by
- (a) $n B$
 - (b) $n^2 B$
 - (c) $2 n B$
 - (d) $2 n^2 B$
55. Which of the following order is correct for the relative strength of fundamental forces
- (a) Strong nuclear force > weak nuclear force > electromagnetic force > gravitational force.
 - (b) Strong nuclear force > electromagnetic force > weak nuclear force > gravitational force
 - (c) Electromagnetic force > strong nuclear force > weak nuclear force > gravitational force
 - (d) Strong nuclear force > weak nuclear force > gravitational force > electromagnetic force
56. Two trains A and B approach a stationary observer from opposite sides with speed 30 ms^{-1} and 60 ms^{-1} respectively. Observer hears no beats. If the frequency of whistle of train B is 450 Hz . The frequency of whistle of train A is (speed of sound = 330 ms^{-1})
- (a) 346 Hz
 - (b) 405 Hz
 - (c) 450 Hz
 - (d) 500 Hz

57. The area of cross-section of the two arms of a hydraulic press are 1 cm^2 and 10 cm^2 , respectively (shown in figure). A force of 5 N is applied on the water in the thinner arm. What force should be applied on the water in the thicker arm so that the water may remain in equilibrium?



- (a) 1 N
(b) 10 N
(c) 5 N
(d) 50 N
58. A satellite is in an orbit around the earth. If its kinetic energy is doubled, then
(a) it will maintain its path
(b) it will fall on the earth
(c) it will rotate with a great speed
(d) it will escape out of earth's gravitational field
59. A cubical ice box of thermocole has each side equal to 30 cm and a thickness of 5 cm . 4 kg of ice is put in the box. If outside temperature is 45°C , coefficient of thermal conductivity is $0.01 \text{ J/s/m}^\circ\text{C}$, and latent heat of fusion of ice is $335 \times 10^3 \text{ J/kg}$, then the mass of ice left after 6 hours is:
(a) 0.313 kg
(b) 3.687 kg
(c) 36.87 kg
(d) 31.3 kg

60. A cylindrical metallic wire is stretched to increase its length by 20%. The percentage increase in its resistance is
- (a) 20%
 - (b) 32%
 - (c) 44%
 - (d) 50%
61. Water flows through a horizontal pipe. The area of cross-section at one place is 10 cm^2 , velocity of water flow is 1 m/s and pressure is 2000 Pa . At another place area of cross-section is 5 cm^2 ; what will be the pressure at second place
- (a) 125 Pa
 - (b) 250 Pa
 - (c) 500 Pa
 - (d) 1000 Pa
62. The velocity of photo-electrons for the material whose work function is 1.24 eV and the wavelength of incident light is $4.36 \times 10^{-7} \text{ m}$ is
- (a) 525.3 km/sec
 - (b) 742.9 km/sec
 - (c) 371.4 km/sec
 - (d) 1050.6 km/sec

63. Half-life of a radioactive material is K . The fraction that would remain after $K/2$ is

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

(b) $\frac{3}{4}$

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

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

64. A telescope consists of two glass balls of refractive index, $\mu = 1.5$ with radii $R_1 = 6$ cm and $R_2 = 2$ cm. In normal adjustment, the distance between the centres of the balls will be

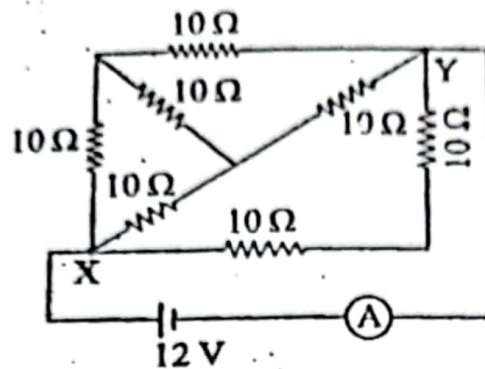
(a) 6 cm

(b) 8 cm

(c) 10 cm

(d) 12 cm

65. In the circuit shown in figure the reading of ammeter will be

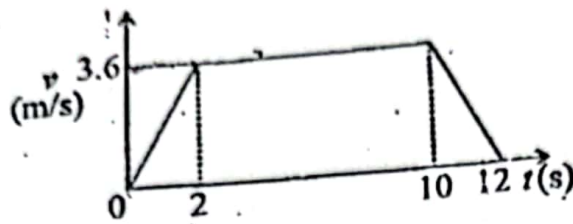


- (a) 1.8 A
- (b) 2.57 A
- (c) 5.47 A
- (d) 8.74 A

66. A series LC circuit has inductive reactance $X_L = 50 \Omega$, capacitive reactance $X_C = 10 \Omega$, and emf of source $V = 20 \sin(100 \pi t) \text{ V}$. Find the variation of current with time t in the circuit

- (a) $\frac{1}{4} \sin[100 \pi (t - \pi/2)]$
- (b) $\frac{1}{2} \sin[100 \pi (t - \pi/2)]$
- (c) $\frac{1}{4} \sin[100 \pi (t + \pi/2)]$
- (d) $\frac{1}{2} \sin[100 \pi (t + \pi/2)]$

A lift is going up. The variation in the speed of the lift is as given in the graph.



The height to which the lift takes the passengers is

- (a) 18 m
- (b) 36 m
- (c) 20 m
- (d) 24 m

68. In a circuit, a coil of inductance ' L ', a capacitor of capacitance ' C ', and a resistor of resistance ' R ' are connected in a series. If the potential difference across ' L ' is 80 volt, across ' C ' is 35 volt, and across ' R ' is 50 volt, then the supply voltage will be

- (a) 95 volt
- (b) 165 volt
- (c) 67 volt
- (d) 77 volt

69. Two discs are rotating with angular speed 2ω and ω having moments of inertia I and $2I$ about their respective axes. They are now brought into contact face to face with their axes of rotation coincident. The loss in kinetic energy is
- $\frac{1}{2} I \omega^2$
 - $\frac{1}{3} I \omega^2$
 - $\frac{1}{4} I \omega^2$
 - $\frac{1}{5} I \omega^2$
70. If an electron is in $n = 6$ level then the de-Broglie wavelength associated with the electron will be
- Six times the de-Broglie wavelength of electron in the ground state
 - Four times the de-Broglie wavelength of electron in the ground state
 - Two times the de-Broglie wavelength of electron in the ground state
 - $(1/5)^{\text{th}}$ of the de-Broglie wavelength of electron in the ground state
71. A mass M is split into two parts m and $(M-m)$, which are then separated by a certain distance. Which ratio (m/M) maximises the gravitational force?
- $\frac{m}{M} = \frac{2}{1}$
 - $\frac{m}{M} = \frac{1}{3}$
 - $\frac{m}{M} = \frac{1}{2}$
 - $\frac{m}{M} = 1$

When atmospheric temperature falls below 0°C , the water in the lake starts freezing. Then time taken by ice to grow a thickness y at atmospheric temperature $- \theta^\circ\text{C}$ is

(a) $-\frac{KA\theta}{y}t$

(b) $\frac{\rho L}{K\theta}y^2$

(c) $\frac{\rho L}{K\theta}y$

(d) $\frac{1}{2} \frac{\rho L}{K\theta}y^2$

(K = thermal conductivity of water, ρ = density, A = area of lake, L = latent heat)

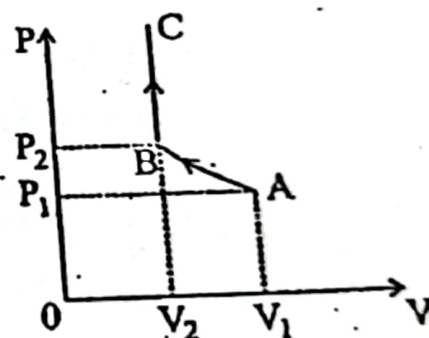
3. Two moles of an ideal monatomic gas, initially at pressure P_1 and volume V_1 , undergo an adiabatic compression until its volume is V_2 . The gas is given heat Q at constant volume V_2 . The total work done by the gas is

(a) $-2 P_1 V_1 \left[1 - \left(\frac{V_1}{V_2} \right)^{2/3} \right]$

(b) $-\frac{3}{2} P_1 V_1 \left[1 - \left(\frac{V_1}{V_2} \right)^{2/3} \right]$

(c) $P_1 (V_2 - V_1)$

(d) 0



74. The output 'Y' of the logic circuit shown in figure will be



- (a) $Y = \overline{A + B}$
 (b) $Y = \overline{\overline{A} + \overline{B}}$
 (c) $Y = A + B$
 (d) $Y = \overline{A - B}$
75. A particle of mass m moves in a one dimensional potential energy $U(x) = -ax^2 + bx^4$, where a and b are positive constants. The angular frequency of small oscillations about the minima of the potential energy is equal to

- (a) $\pi\sqrt{\frac{a}{2b}}$
 (b) $2\sqrt{\frac{a}{m}}$
 (c) $\sqrt{\frac{2a}{m}}$
 (d) $\sqrt{\frac{a}{2m}}$

Section IV – Mathematics

76. If A and B are two matrices of same order then $(AB^T - BA^T)$ is a
- (a) Skew symmetric matrix
 - (b) Null matrix
 - (c) Symmetric matrix
 - (d) Unit matrix
77. If $\log_3 a \cdot \log_a x = 2$, then x is equal to
- (a) 9
 - (b) 8
 - (c) 27
 - (d) a^2
78. The total no. of terms in the expansion $(x+a)^{51} - (x-a)^{51}$
- (a) 102
 - (b) 26
 - (c) 25
 - (d) None of these
79. If α, β are roots of $ax^2 + bx + c = 0$ and $\alpha + h, \beta + h$ are roots of $px^2 + qx + r = 0$, then the value of h is
- (a) $\frac{b}{a} - \frac{q}{p}$
 - (b) $\frac{1}{2} \left(\frac{b}{a} - \frac{q}{p} \right)$
 - (c) $-\frac{1}{2} \left(\frac{b}{a} - \frac{q}{p} \right)$
 - (d) $\frac{1}{3} \left(\frac{b}{a} - \frac{q}{p} \right)$

80. A unit vector perpendicular to both $\hat{i} + \hat{j}$ and $\hat{j} + \hat{k}$, is

(a) $\hat{i} - \hat{j} + \hat{k}$

(b) $\hat{i} + \hat{j} + \hat{k}$

(c) $\frac{\hat{i} + \hat{j} + \hat{k}}{\sqrt{2}}$

(d) $\frac{\hat{i} - \hat{j} + \hat{k}}{\sqrt{3}}$

81. If f is a real valued function such that $f(x+2) = f(x)$ and $f(-x) = -f(x)$ for all reals x then $f(4)$ is equal to

(a) zero

(b) 6

(c) -4

(d) not possible to find

82. Given the L.P.P.

Minimize $Z = -3x_1 + 4x_2$

Subject to the constraints : $x_1 + 2x_2 \leq 8$

$3x_1 + 2x_2 \leq 12$

$x_1 \geq 0, x_2 \geq 0$

The solution is

(a) 0

(b) -12

(c) -6

(d) -16

83. The Cartesian equation of the line that passes through the points $(3, -2, -5)$, $(3, -2, 6)$ is

(a) $\frac{x-3}{0} = \frac{y+2}{0} = \frac{z+5}{11}$

(b) $\frac{x}{3} = \frac{y}{2} = \frac{z}{5}$

(c) $\frac{x}{3} = \frac{y}{-2} = \frac{z}{-5}$

(d) $\frac{x+3}{0} = \frac{y-2}{0} = \frac{z-5}{11}$

84. If the product of n positive numbers is 1, then their sum is

(a) $\leq n$

(b) $\geq n$

(c) $= n$

(d) $\geq n^2$

85. X can hit a target 4 times in 5 shots, Y can hit 3 times in 4 shots and Z can hit 2 times in 3 shots. The probability that Y and Z hit and X does not hit is

(a) $\frac{1}{5}$

(b) $\frac{2}{5}$

(c) $\frac{7}{12}$

(d) $\frac{1}{10}$

86. If $[x]^2 - 5[x] + 6 = 0$, where $[.]$ denote the greatest integral function then

- (a) $x \in [3, 4]$
- (b) $x \in (2, 3]$
- (c) $x \in [2, 4]$
- (d) $x \in [2, 3]$

87. $I = \int_{-\pi/2}^{\pi/2} \{\sin |x| + \cos |x|\} dx$ is equal to.

- (a) 0
- (b) 4
- (c) 1
- (d) -1

88. The differential equation of the family of curves $x^2 + y^2 - 2ay = 0$ where a is arbitrary constant is

- (a) $(x^2 - y^2) \frac{dy}{dx} = 2xy$
- (b) $2(x^2 - y^2) \frac{dy}{dx} = xy$
- (c) $2(x^2 + y^2) \frac{dy}{dx} = xy$
- (d) $(x^2 + y^2) \frac{dy}{dx} = 2xy$

89. If $x \cos \alpha + y \sin \alpha = -\sin \alpha \tan \alpha$ be the equation of a line, then length of perpendiculars on the line from the points $(a^2, 2a)$, $(ab, a + b)$ and $(b^2, 2b)$ are in

(a) A.P.

(b) G.P.

(c) H.P.

(d) None of these



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90. The value of a in order that $f(x) = \sqrt{2}(\sin x - \cos x) - 2ax + b$ decreases for all real values of x , is given by

(a) $a < 1$

(b) $a \geq 1$

(c) $a \geq \sqrt{2}$

(d) $a < \sqrt{2}$

91. The points on the curve $9y^2 = x^3$, where the normal to the curve make equal intercepts with the axes are

(a) $(4, \pm \frac{8}{3})$

(b) $(4, -\frac{8}{3})$

(c) $(4, \pm \frac{3}{8})$

(d) $(\pm 4, \frac{3}{8})$

92. $\int \frac{x \tan^{-1} x}{(1+x^2)^{3/2}} dx$ equals to

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

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

(c) $\frac{x - \tan^{-1} x}{1+x^2}$

(d) $\frac{x + \tan^{-1} x}{1+x^2}$

93. For specifying a straight line, how many geometrical parameters should be known?

(a) 1

(b) 2

(c) 3

(d) 4

94. A can solve 90% of the problems given in a book and B can solve 70%. What is the probability that at least one of them will solve the problem, selected at random from the book?

(a) 0.63

(b) 0.27

(c) 0.30

(d) 0.97

95. If e_1 and e_2 are eccentricities of two hyperbolas $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ and

$$\frac{x^2}{b^2} - \frac{y^2}{a^2} = 1, \text{ then}$$

(a) $\frac{1}{e_1^2} + \frac{1}{e_2^2} = 1$

(b) $e_1 = e_2$

(c) $e_1 = -e_2$

(d) $e_1 \cdot e_2 = 1$

96. Let X be a binomially distributed random variable with parameter p , based on n repetition of an experiment. The standard deviation of X is

(a) np

(b) \sqrt{np}

(c) $np(1-p)$

(d) $\sqrt{np(1-p)}$

97. The general solution of trigonometric equation

$$\sin 3\alpha = 4 \sin \alpha \cdot \sin(x + \alpha) \cdot \sin(x - \alpha)$$

(where $\alpha \neq n\pi, n \in \mathbb{Z}$) is

(a) $2n\pi \pm \frac{\pi}{3}$

(b) $n\pi + \frac{\pi}{6}$

(c) $n\pi \pm \frac{\pi}{6}$

(d) $n\pi \pm \frac{\pi}{3}$

[P.T.O.]

101. Glomerular filtration rate (GFR) in a healthy individual is approximately

- (a) 180 ml/minute
- (b) 125 ml/minute
- (c) 80 ml/minute
- (d) 280 ml/minute

102. The natural killer cells are a type of

- (a) T4 cells
- (b) T8 cells
- (c) B4 cells
- (d) B8 cells

103. The disorder caused by the excessive secretion of growth hormone in adults causes

- (a) Gigantism
- (b) Acromegaly
- (c) Cretinism
- (d) Myxedema

104. Which one of the following is a type of cancer found in humans?

- (a) Asthma
- (b) Emphysema
- (c) Melanoma
- (d) Hematoma



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105. The cellulose is a polymeric polysaccharide consisting of
- (a) Fructose
 - (b) Sucrose
 - (c) Glucose
 - (d) Xylose
106. In gout, high level of which of the following is found in blood
- (a) Urea
 - (b) Uric acid
 - (c) Cholesterol
 - (d) Ammonia
107. Which one of the following is not the larval stage of liver fluke?
- (a) miracidium
 - (b) coracidium
 - (c) redia
 - (d) cercaria
108. Microcytic anaemia is due to deficiency of
- (a) Vitamin B₁₂
 - (b) Folic acid
 - (c) Fe
 - (d) Vitamin B₂

109. Inspiratory capacity (IC) of human lung is
- (a) Tidal volume + residual volume
 - (b) Tidal volume + expiratory reserve volume
 - (c) Tidal volume + inspiratory reserve volume
 - (d) Residual volume + expiratory reserve volume
110. The chief nitrogenous waste product, ammonia is converted into urea in the
- (a) Liver
 - (b) Kidney
 - (c) Blood
 - (d) Spleen
111. The correct dental formula of humans is
- (a) 2132/2132
 - (b) 2123/2123
 - (c) 3123/3123
 - (d) 2312/2312
112. Short lived immunity acquired through mother's milk by the infant is called .
- (a) Natural active immunity
 - (b) Artificial passive immunity
 - (c) Artificial active immunity
 - (d) Natural passive immunity

113. Water molecule is

- (a) Positively charged
- (b) Dipolic
- (c) Negatively charged
- (d) Carrying no charge

114. Cytochrome oxidase, for its activity contains

- (a) Mg
- (b) Fe
- (c) Co
- (d) Mn

115. During photosynthetic light phase, PSII absorbs energy at or just below

- (a) 700 nm
- (b) 870 nm
- (c) 680 nm
- (d) 780 nm

116. Which element is required for nodulation in legumes?

- (a) Manganese
- (b) Iron
- (c) Molybdenum
- (d) Boron

117. Which water fern is used as biofertilizer in rice fields?
- (a) *Marsilea*
 - (b) *Azolla*
 - (c) *Salvinia*
 - (d) *Pteridium*
118. Exotic species having been introduced in India are
- (a) *Lantana camara*, Water hyacinth
 - (b) Water hyacinth, *Prosopis cineraria*
 - (c) *Lantana camara*, *Ficus religiosa*
 - (d) Nile perch, *Ficus religiosa*
119. Green house effect is caused by
- (a) Green plants
 - (b) Infrared rays
 - (c) UV rays
 - (d) X-rays
120. The distance between two consecutive base pairs of DNA is
- (a) 0.34×10^{-9} nm
 - (b) 0.34×10^{-9} μ m
 - (c) 0.34×10^{-9} mm
 - (d) 0.34×10^{-9} m
121. Several pathogens can be controlled by treating plants with
- (a) *Ustilago*
 - (b) *Fusarium*
 - (c) *Rhizopus*
 - (d) *Trichoderma*

122. Which one of the following microbes does not fix atmospheric nitrogen?

- (a) *Azospirillum*
- (b) *Azotobacter*
- (c) *Anabaena*
- (d) *Glomus*

123. In a monohybrid cross, absence of complete dominance is indicated by the F_1 plants that are intermediate in appearance and this can be further confirmed if the phenotypic ratio in the F_2 generation is

- (a) 1 : 2 : 1
- (b) 2 : 1 : 1
- (c) 3 : 1
- (d) 1 : 1

124. Which one of the following is also called scattering of variability?

- (a) Gene pool
- (b) Isolation
- (c) Genetic drift
- (d) Gene flow



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125. How many lobes are present in right lung of man?

- (a) 2
- (b) 3
- (c) 4
- (d) 5

Section VI – Home Science

126. Moderately impaired hearing is when the child does not respond to sound up to
- (a) 40 dB
 - (b) 70 dB
 - (c) 95 dB
 - (d) 110 dB
127. The ability of not forgetting the existence of the toy is called
- (a) Object value
 - (b) Object criteria
 - (c) Object permanence
 - (d) Object evaluation
128. "Audiometer" an electronic audio device for hearing impaired children was developed in the year
- (a) 1910
 - (b) 1920
 - (c) 1940
 - (d) 1930
129. Piping should be cut always on true bias to get maximum
- (a) Stretch in curved area
 - (b) Length in curved area
 - (c) Width in curved area
 - (d) Decoration in curved area

130. Strongest weave in fabric construction is

- (a) Plain weave
- (b) Twill weave
- (c) Satin weave
- (d) Dobby weave

131. _____ is used to remove cocoa stains from clothes

- (a) Acetone
- (b) Hydrogen peroxide
- (c) Methylated spirit
- (d) Ammonia



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132. Cerebral palsy is also known as

- (a) Vocal disorder
- (b) Learning disorder
- (c) Brain paralysis
- (d) Creative disorder

133. Which of the following is not an element of management process?

- (a) Planning
- (b) Controlling
- (c) Staffing
- (d) Implementing

134. Metanil yellow is a common adulterant found in
- (a) chana daal
 - (b) desi ghee
 - (c) coriander powder
 - (d) bura
135. We should always use seasonal foods because of
- (a) increase in nutrients
 - (b) decrease in price
 - (c) ease in availability
 - (d) all the above
136. The use of sodium bicarbonate during cooking destroys
- (a) Vitamin A and B
 - (b) Vitamin C and D
 - (c) Vitamin B and C
 - (d) Vitamin A and C
137. MMR stands for
- (a) Measles Maturation Rate
 - (b) Measles Mumps Rubella
 - (c) Mental Mortality Rate
 - (d) Mothers Morbidity Rate
138. Accomplishment of the task with proper sequencing of the activities is known as
- (a) Work simplification
 - (b) Work organisation
 - (c) Supervision
 - (d) Streamlining

139. Small lights are attached to the middle finger on each hand, and patterns are recorded on a photographic film for later analysis. This method is known as

- (a) Micro motion film analysis
- (b) Chronocyclegraph
- (c) Cyclegraph
- (d) Pathway chart

140. 'Work triangle' in the kitchen indicates the path connecting the

- (a) sink, cooking range and preparation centre
- (b) sink, microwave and preparation centre
- (c) sink, preparation centre and overhead counter
- (d) sink, cooking range and refrigerator

141. Which one of the following is not a community resource?

- (a) Fodder
- (b) Fuel
- (c) Farm
- (d) Park

142. Which of the method of cooking does not help in fuel conservation?

- (a) Use of wide and shallow utensils
- (b) Soaking cereals and pulses before cooking
- (c) Use of well-fitted lids
- (d) Ensuring yellow colour of flame

143. The capacity of doing work is

- (a) stress
- (b) strain
- (c) energy
- (d) management

144. Which of the following indicates dullness and brightness of colour?

- (a) Hue
- (b) Chroma
- (c) Value
- (d) Intensity

145. Which one of the following is not a tertiary colour?

- (a) Red orange
- (b) Red purple
- (c) Blue purple
- (d) Blue yellow

146. In India the first Home Science College was established by Lady Irwin in

- (a) 1938
- (b) 1935
- (c) 1942
- (d) 1932

[P.T.O.]

147. Extension worker act as _____ leader of community.
- (a) Formal
 - (b) Opinion
 - (c) Informal
 - (d) Local
148. The 'value' of a colour refers to its
- (a) pinkness or redness
 - (b) greyness or dullness
 - (c) darkness or lightness
 - (d) brightness or dullness
149. Mobile Creche Information Research Centre was set up in January
- (a) 1991
 - (b) 1996
 - (c) 1986
 - (d) 1993
150. Development spreads over the body from head to foot i.e., individual begins to grow from head region to downwards is called
- (a) Proximodistal sequence
 - (b) Cephalo-caudal sequence
 - (c) Predictability
 - (d) Maturation and learning



ALIGARH MUSLIM UNIVERSITY, ALIGARH
Answer Key B.Sc. (Hons.) Admission Test 2019-20
SERIES: B

Q.No.	Answer
1	D
2	D
3	A
4	C
5	A
6	D
7	C
8	D
9	D
10	C
11	C
12	D
13	A
14	B
15	C
16	B
17	A
18	A
19	B
20	A
21	D
22	B
23	A
24	A
25	A
26	D
27	C
28	A
29	B
30	C
31	D
32	C
33	C
34	B
35	A
36	C
37	C
38	B
39	B
40	A

Q.No.	Answer
41	C
42	C
43	C
44	D
45	D
46	C
47	A
48	A
49	C
50	A
51	B
52	A
53	D
54	B
55	B
56	D
57	D
58	D
59	B
60	C
61	C
62	B
63	C
64	D
65	A
66	B
67	B
68	C
69	B
70	A
71	C
72	D
73	B
74	C
75	B
76	A
77	A
78	B
79	B
80	D

Q.No.	Answer
81	A
82	B
83	A
84	B
85	D
86	C
87	B
88	A
89	B
90	B
91	A
92	B
93	B
94	D
95	A
96	D
97	D
98	C
99	C
100	A
101	B
102	B
103	B
104	C
105	C
106	B
107	B
108	C
109	C
110	A
111	B
112	D
113	B
114	B
115	C
116	C
117	B
118	A
119	B
120	D

Q.No.	Answer
121	D
122	D
123	A
124	C
125	B
126	B
127	C
128	B
129	A
130	B
131	B
132	C
133	B
134	A
135	D
136	B
137	B
138	B
139	B
140	D
141	C
142	D
143	C
144	D
145	D
146	D
147	C
148	C
149	A
150	B

COORDINATOR
Dated: 12.04.2019