SSB
Head Const.
Previous Year Paper
Paper-II
23 Sep, 2018

100 Questions

Que. 1 One mole of oxygen at STP is equal to:

1. 6.022×10^{23} molecules of oxygen
2. 6.022×10^{23} atoms of oxygen
3. 16g of oxygen
4. 8g of oxygen

Correct Option - **1**

Que. 2 Which of the following reaction is not correct according to the law of conservation of mass?

1. $2Mg(s)+O_2(g) \rightarrow 2MgO\ (s)$
2. $C_3H_8(g)+O_2 \rightarrow CO_2(g)+H_2O$
3. $P_4(s)+5O_2(g) \rightarrow P_4O_{10}(s)$
4. $CH_4(g)+2O_2(g) \rightarrow CO_2(g)+2H_2O$

Correct Option - **2**

Que. 3 Mole is SI unit of _____.

1. Current
2. Temperature
3. Amount of substance
4. Luminous intensity

Correct Option - **3**

Que. 4 What amount of H_2O is produced by combustion of 32g of CH_4?

1. 36 g
2. 18 g
3. 72 g
4. 90 g

Correct Option - **3**

Que. 5 _____in oxidation.

1. Loss of hydrogen
2. Loss of oxygen
3. Gain of hydrogen
4. Gain of electron

Correct Option - **1**

Que. 6 _____occurs in redox reactions.

1. Oxidation
2. Reduction
3. Neutralization
4. Both (1) and (2)

Correct Option - **4**

Que. 7 _____ is a isomeric pair.

1. Ethane and propane
2. Propane and butane
3. Ethane and butane
4. Butane and 2-methyl propane

Correct Option - **4**

Que. 8 The product of soap is_____.

1. Isoprene
2. Glycerol
3. Butene
4. Ethylene glycerol

Correct Option - **2**

Que. 9 The alloy is _____.

1. An element
2. A compound
3. A heterogeneous mixture
4. A homogeneous mixture

Correct Option - **4**

Que. 10 The ability of a metal to form thin wires is called _____.

1. Ductility
2. Malleability
3. Phonetics
4. Conductivity

Correct Option - **1**

Que. 11 The composition of aqua regia is_____.

1. Diluted HCl : Concentrated HNO_3 :: 3 : 1
2. Concentrated HCl : Concentrated HNO_3 :: 3 : 1
3. Concentrated HCl : Diluted HNO_3 :: 3 : 1
4. Diluted HCl : Diluted HNO_3 :: 3 : 1

Correct Option - **2**

Que. 12 Which of the following is not an ionic compound?

1. KCl
2. BaO
3. CCl_4
4. NaCl

Correct Option - **3**

Que. 13 The elements found in maximum abundant in the Earth's crust are _____.

1. Al and Fe
2. Al and Cu
3. Fe and Cu
4. Cu and Ag

Correct Option - **1**

Que. 14 _____ is the impurity that generally found in bauxite.

1. CuO
2. ZnS
3. Fe_2O_3
4. SiO_2

Correct Option - **4**

Que. 15 Which of the following is a mineral or iron?

1. Malachite
2. Cassiterite
3. Pyrolusite
4. Magnetite

Correct Option - **4**

Que. 16 Extraction of gold and silver involves leaching with cyanide ion. Silver is later recovered by _____.

1. Liquidation
2. Distillation
3. Zone refining
4. displacement with Zn

Correct Option - **4**

Que. 17 Al_2O_3 can be converted into dry $AlCl_3$ by heating _____.

1. Al_2O_3 with HCl gas
2. Al_2O_3 in solid state with NaCl
3. Mixture of Al_2O_3 and carbon in dry Cl_2 gas
4. Al_2O_3, with Cl_2 gas

Correct Option - **3**

Que. 18 In pig iron, which of the following elements is present in the maximum quantity as an impurity?

1. Carbon
2. Silicon
3. Phosphorus
4. Magnesium

Correct Option - **1**

Que. 19 Which of the following is used as a sedative (calming drug)?

1. Promethazine
2. Valium
3. Naproxen
4. Mifepristone

Correct Option - **2**

Que. 20 Which of the following is not an antibiotic?

1. Erythromycin
2. Oxytocin
3. Penicillin
4. Tetracyclin

Correct Option - **2**

Que. 21 If A = {2, 3, 4} and B = {3, 5} then A ∪ B will be:

1. {3, 5}
2. ϕ
3. {2, 3, 4, 5}
4. {2, 3}

Correct Option - **3**

Que. 22 For any set A, (A')' is equal to:

1. A
2. A'
3. ϕ
4. None of these

Correct Option - **1**

Que. 23 If A and B are two finite sets, then n (A × B) is _____:

1. n (A) + n (B)
2. n (A) × n (B)
3. n (A) ÷ n (B)
4. n (A) - n (B)

Correct Option - **2**

Que. 24 Two functions are said to be equal if_____

1. Domain of 'ρ = Domain of 'g'
2. Co-domain of 'ρ = Co-domain of 'g'
3. f(x) = g(x), For every value of x
4. All of the above

Correct Option - **4**

Que. 25 Sin (2nπ + x) = ?, n ∈ I

1. cos x
2. -cos x
3. sin x
4. -sin x

Correct Option - **3**

Que. 26 $1 + \tan^2 x = ?$

1. $\cot^2 x$

2. $\text{cosec}^2 x$
3. $\sec^2 x$
4. None of the above

Correct Option - **3**

Que. 27 A mathematical statement consists of_____.

1. Mathematical values
2. Mathematical relations
3. Both of the above
4. None of the above

Correct Option - **3**

Que. 28 The first principle of mathematical induction is, if p(1) is true i.e. p(n) is true for n = 1 then p(n) will be true _____

1. For all z
2. For all n
3. For all rational numbers
4. All of the above

Correct Option - **2**

Que. 29 The value of i^{19} will be _____.

1. i
2. -i
3. 1
4. -1

Correct Option - **2**

Que. 30 If discriminant $D = b^2 - 4ac$ is _____then quadratic equation $ax^2 + bx + c = 0$ will not have any real roots.

1. $D = 0$
2. $D > 0$
3. $D < 0$
4. $D \geq 0$

Correct Option - **3**

Que. 31 The solution of equation $-3x + 12 < 0$ will be_____.

1. $x < 4$
2. $x = 4$
3. $x > 4$
4. $x \geq 0$

Correct Option - **3**

Que. 32 $x^2 \geq 0$ for all values of _____.

1. $x \in R$
2. $x \in Z$
3. $x \in n$
4. All of the above

Correct Option - **4**

Que. 33 The common difference of the sequence 9, 5, 1, -3, -7 is _____.

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

Correct Option - **2**

Que. 34 The sequence 2, 4, 8, 16 makes _____.

1. Arithmetic Progression
2. Geometrical Progression
3. Harmonic Progression
4. Non of the above

Correct Option - **2**

Que. 35 The first and last terms of the arithmetic progression are 1 and 11. If the sum of its terms is 36, then the number of terms will be _____.

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

Correct Option - **3**

Que. 36 The equation of the line passing through points A (-3, 2), B (-3, 6), and C (-3, -6) is _____.

1. $x = -3$

2. $x + y = 2$
3. $y = -3$
4. $x + y = 6$

Correct Option - **1**

Que. 37 The coordinate point of the midpoint of the line segment joining the points (4, 3) and (-2, 1) is:

1. (1, 2)
2. $\left(\frac{5}{2}, \frac{1}{2}\right)$
3. (2, 4)
4. (2, 5)

Correct Option - **1**

Que. 38 The axis of symmetry of the parabola $y^2 = x$ is:

1. Y axis
2. X axis
3. -Y axis
4. -X axis

Correct Option - **2**

Que. 39 The equation $x^2 + 4x - 2y + 5 = 0$ shows:

1. A point
2. A pair of straight lines
3. A circle of nonzero radius
4. Neither of the above

Correct Option - **4**

Que. 40 Point (5, 2, 3) will be lie in which octant:

1. X'OYZ
2. XOYZ
3. XOY'Z
4. XOYZ'

Correct Option - **2**

Que. 41 The locus of point $y = 0, z = 0$ is:

1. Y - axis
2. X - axis

3. Z - axis
4. YZ - Plane

Correct Option - **2**

Que. 42 The differentiation of sin (x + a) with respect to x is:

1. a cos x
2. a cos (x + a)
3. cos (x + a)
4. Neither of the above

Correct Option - **3**

Que. 43 Which of the following is not a value of central tendency?

1. Mode
2. Median
3. Mean
4. Standard deviation

Correct Option - **4**

Que. 44 The sum of the probabilities of all the events of an experiment is:

1. $\frac{1}{2}$
2. $\frac{2}{3}$
3. 1
4. 0

Correct Option - **3**

Que. 45 A square matrix is a matrix in which:

1. All components have a value of 2
2. Have two rows and two columns
3. The number of rows is equal to the number of columns
4. Neither of the above

Correct Option - **3**

Que. 46 An empty matrix is a matrix in which:

1. All components are zero
2. The diagonal components are zero
3. The non-diagonalizable components are zero

4. Neither of the above

Correct Option - **1**

Que. 47 If A is a singular matrix, then the value of |A|:

1. 1
2. 0
3. -1
4. Neither of the above

Correct Option - **2**

Que. 48 The value of determinant $\begin{vmatrix} 5 & 4 \\ -2 & 3 \end{vmatrix}$ is

1. 24
2. 22
3. 23
4. 7

Correct Option - **3**

Que. 49 Which of the following functions is continuous everywhere?

1. log x
2. tan x
3. sec x
4. cos x

Correct Option - **4**

Que. 50 The function $f(x) = \sin^{-1}(\cos x)$ is:

1. Differentiable at x = 0
2. Continuous at x = 0
3. Discontinuous at x = 0
4. Neither of the above

Correct Option - **2**

Que. 51 If $V = \frac{4}{3}\pi r^3$ at what rate is V increasing in cubic units when r = 10 and $\frac{dr}{dt} = 0.01$

1. 4π
2. 40π
3. π

4. $\frac{4\pi}{3}$

Correct Option - **1**

Que. 52 The volume of a cone varies with the radius of its base:

1. $4\pi r + 2\pi h$
2. $4\pi r^2$
3. $\frac{2}{3}\pi rh$
4. Neither of the above

Correct Option - **3**

Que. 53 The integral of x^5 is:

1. $5\,x^6 + C$
2. $x^6 + C$
3. $\frac{x^6}{6} + C$
4. Neither of the above

Correct Option - **3**

Que. 54 The integral of sin x is:

1. cos x
2. -cos x
3. sec x
4. cosec x

Correct Option - **2**

Que. 55 The power of differential equation $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = 0$ will be:

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

Correct Option - **1**

Que. 56 General solution of differential equation $\frac{dy}{dx} = \frac{y}{x}$ is:

1. log y = kx
2. y = kx

3. $xy = k$
4. $y = k \log x$

Correct Option - **2**

Que. 57 General solution of differential equation $\frac{dy}{dx} + y \cot x = \text{cosec } x$ is:

1. $x + y \sin x = c$
2. $x + y \cos x = c$
3. $y + x(\sin x + \cos x) = c$
4. $y \sin x = x + c$

Correct Option - **4**

Que. 58 Unit vector of $\vec{r} = 3i + 2j - 2k$ will be:

1. $\frac{3i}{\sqrt{17}} + \frac{2j}{\sqrt{17}} - \frac{2k}{\sqrt{17}}$
2. $\sqrt{17}$ unit
3. $\sqrt{15}$ unit
4. 2 unit

Correct Option - **1**

Que. 59 Vector $\vec{A}$ and $\vec{B}$ are parallel, then:

1. $\vec{A}.\vec{B} = 0$
2. $\vec{A} \times \vec{B} = 0$
3. $\vec{A} + \vec{B} = 0$
4. $\vec{A} - \vec{B} = 0$

Correct Option - **2**

Que. 60 If P(3, 2, -4), Q(9, 8, -10) and R(5, 4, -6) are collinear, then R divides PQ in the ratio :

1. 3 : 2
2. 2 : 3
3. 2 : 1
4. 1 : 2

Correct Option - **4**

Que. 61 Sonar works on the principle of _____.. :

1. Reflection of light
2. Reflection of sound

3. Refraction of light
4. Doppler effect

Correct Option - **2**

Que. 62 _____ is used to measure long distance.

1. Parallax method
2. Oleic Acid Method
3. Torricelli method
4. All of the above

Correct Option - **1**

Que. 63 _____ is the study of motion without knowing the cause of motion..

1. Statics
2. Dynamics
3. Kinematics
4. Thermodynamics

Correct Option - **3**

Que. 64 Car A is moving towards east with a velocity of 30 m/s, another car B is moving towards west with a velocity of 10 m/s. What will be the relative velocity of A with respect to B?

1. 40 m/s to the west
2. 40 m/s to the east
3. 10 m/s to the west
4. 10 m/s to the east

Correct Option - **2**

Que. 65 The path of a projectile is :

1. parabola
2. hyperbola
3. circular
4. straight line

Correct Option - **1**

Que. 66 Speed in plane means:

1. Only the Y coordinate is changing
2. Only the X coordinate is changing.
3. Both X and Y coordinates are changing

4. None of these

Correct Option - **3**

Que. 67 Newton's first law of motion is also known as:

1. action-reaction law
2. law of force
3. law of inertia
4. None of these

Correct Option - **3**

Que. 68 The momentum of an object changes from 20 kg m/s to 5 kg m/s in 3 sec. The value of the applied force will be:

1. 15 N
2. 3 N
3. 5 N
4. 10 N

Correct Option - **3**

Que. 69 The unit of work is the same as the unit of _____.

1. power
2. force
3. energy
4. momentum

Correct Option - **3**

Que. 70 1 kilowatt is equal to:

1. 1000 joule
2. 1000 watt
3. 3.6×10^6 joule
4. None of these

Correct Option - **2**

Que. 71 The center of gravity is the point where:

1. gravity is maximum
2. mass is maximum
3. The mass of the body is considered to be centered
4. The weight of the body is considered to be centered

Correct Option - **4**

Que. 72 The unit of angular velocity is-

1. meter/second
2. second^{-1}
3. radian per second
4. None of these

Correct Option - **3**

Que. 73 As we move above the earth's surface, the acceleration due to gravity_____

1. increases
2. decreases
3. no change
4. depends on body mass

Correct Option - **2**

Que. 74 According to Kepler's first law, the planets move around the Sun:

1. in a elliptical
2. in a circular orbit
3. in a parabolic orbit
4. None of these

Correct Option - **1**

Que. 75 The property of a body due to which it returns to its shape after the removal of deforming force is known as :

1. stiffness
2. inelasticity
3. elasticity
4. viscosity

Correct Option - **3**

Que. 76 Unit of stress is same as that of:

1. Work
2. Force
3. Pressure
4. Energy

Correct Option - **3**

Que. 77 In Boyle's law which of the following remains constant ?

1. Temperature
2. Pressure
3. Volume
4. Both 1 and 2

Correct Option - **1**

Que. 78 The ideal gas equation for 1 mole of gas is:

1. $P_1V_1 = P_2V_2$
2. $\frac{P_1}{P_2} = \frac{T_1}{T_2}$
3. $PV = nRT$
4. $PV = RT$

Correct Option - **4**

Que. 79 Sound waves are:

1. Electromagnetic waves
2. Transverse waves
3. Mechanical waves
4. All of the above

Correct Option - **3**

Que. 80 Quantization of charge states that:

1. $Q = ne$
2. $Q = \pm ne$
3. $Q = -ne$
4. None of the above

Correct Option - **2**

Que. 81 According to Coulomb's law:

1. $F \propto q_1q_2$
2. $F \propto 1/r^2$
3. $F = \frac{q_1q_2}{4\pi\varepsilon_0 r^2}$
4. All of the above

Correct Option - **4**

Que. 82 The unit of electric potential is

1. Coulomb
2. Ampere
3. Joule
4. Volt

Correct Option - **4**

Que. 83 1 micro farad means:

1. 10^{6} farad
2. 10^{-6} farad
3. 10^{-12} farad
4. 10^{-9} farad

Correct Option - **2**

Que. 84 According to Ohm's law:

1. $V \propto R$
2. $V \propto 1/R$
3. $V \propto I$
4. None of the above

Correct Option - **3**

Que. 85 Rate of flow of electric charge is known as:

1. Electric potential
2. Electric capacitance
3. Electric resistance
4. Electric current

Correct Option - **4**

Que. 86 Direction of magnetic field around a wire is find by using :

1. Fleming's right hand rule
2. Fleming's left hand rule
3. Right hand thumb rule
4. Left hand thumb rule

Correct Option - **3**

Que. 87 In the following, which is paramagnetic material?

1. Gold
2. Silver
3. Diamond
4. Aluminium

Correct Option - **4**

Que. 88 Law of electromagnetic induction is given by

1. Fleming
2. Orsted
3. Biot-Savart
4. Faraday

Correct Option - **4**

Que. 89 Electromagnetic waves are generated by:

1. Electric field
2. Magnetic field
3. Constant electric and magnetic field
4. Variable electric and magnetic field

Correct Option - **4**

Que. 90 For a convex lens the magnification is equal to-1 when object is placed :

1. at ∞
2. at focus
3. at 2F
4. None of the above

Correct Option - **3**

Que. 91 In terms of reflection, if i = 0 then r will be:

1. $r = 90°$
2. $r = 30°$
3. $r = 0°$
4. $r = 60°$

Correct Option - **3**

Que. 92 Waveforms emerging from a point source will be:

1. cylindrical
2. spherical
3. plane
4. elliptical

Correct Option - **2**

Que. 93 Bohr's quantization condition is:

1. $L = nh/2\pi$
2. $L = -h/4\pi$
3. $L = -nh/4\pi$
4. None of these

Correct Option - **1**

Que. 94 The nucleus of the atom is positive :

1. due to the presence of electrons around it
2. due to the presence of neutrons
3. due to the presence of protons
4. None of these

Correct Option - **3**

Que. 95 An electric motor is a device that converts energy into:

1. electrical energy to mechanical energy
2. mechanical energy to electrical energy
3. solar energy to electrical energy
4. electrical energy to heat energy

Correct Option - **1**

Que. 96 The diode used in voltage regulator is:

1. P-N diode
2. Photo diode
3. Zener diode
4. Tunnel diode

Correct Option - **3**

Que. 97 Gate with one input and one output:

1. AND gate
2. NOR gate

3. OR gate
4. NOT gate

Correct Option - **4**

Que. 98 NAND gate combination is:

1. OR and NOT gate
2. NOT and NOR gate
3. NOT and AND gate
4. All of the above

Correct Option - **3**

Que. 99 Signals in the form of pulse are known as:

1. Analog
2. Digital
3. Mechanical
4. None of these

Correct Option - **2**

Que. 100 LAN in communication means:

1. Live Area Network
2. Local Area Network
3. Large Area Network
4. Least Area Network

Correct Option - **2**