

OUAT UG

**Previous Year Paper
09 Aug, 2022**

OUAT U G Common Entrance Examination 2022 9th and 12th Aug 2022

Participant ID	
Participant Name	
Test Center Name	
Test Date	09/08/2022
Test Time	10:00 AM - 12:00 PM
Subject	OUAT U.G Common Entrance Examination 2022
Physics (Compulsory)	
Chemistry (Compulsory)	
Mathematics (Optional)	
Biology (Optional)	
Marks Obtained	

Option highlighted in green color with  is the correct answer

Section : Physics (Compulsory)

Q.1 Which of the following stresses produces a change in volume of the body in which it developed?

- Ans  A. Shear stress
 B. Tensile stress
 C. Hydraulic stress
 D. Compressive stress

Question Type : MCQ
Question ID : 95001726
Status : Answered
Chosen Option : B
Marks : 0

Q.2 An object is placed at 12 cm in front of a concave mirror of radius of curvature 22 cm. Find the distance of the image from mirror.

- Ans  A. 125 cm
 B. 115 cm
 C. 132 cm
 D. 144 cm

Question Type : MCQ
Question ID : 95001759
Status : Answered
Chosen Option : C
Marks : 1

Q.3 Match the Column I with the Column II correctly.

Column I	Column II
(A) DC Motor	(1) Eddy current
(B) AC Generator	(2) Slip rings
(C) Solenoid	(3) Split rings
(D) Dead beat galvanometer	(4) A cylindrical coil wrapped by insulated cooper wire

- Ans ☒ A. (A)-(1) ; (B)-(2) ; (C)-(4) ; (D)-(3)
- ☒ B. (A)-(3) ; (B)-(2) ; (C)-(1) ; (D)-(4)
- ☒ C. (A)-(3) ; (B)-(2) ; (C)-(4) ; (D)-(1)
- ☒ D. (A)-(2) ; (B)-(4) ; (C)-(3) ; (D)-(1)

Question Type : MCQ
Question ID : 95001753
Status : Answered
Chosen Option : C
Marks : 1

Q.4 The kinetic energy of a moving particle with respect to any other particle will always be:

- Ans ☒ A. zero
- ☒ B. negative
- ☒ C. positive
- ☒ D. infinite

Question Type : MCQ
Question ID : 95001713
Status : Answered
Chosen Option : A
Marks : 0

Q.5 The unit of electric current can also be written as:

- Ans ☒ A. Cs^{-1}
- ☒ B. C^2s^{-1}
- ☒ C. Vm^{-2}
- ☒ D. Vm^{-1}

Question Type : MCQ
Question ID : 95001746
Status : Answered
Chosen Option : A
Marks : 1

Q.6 What is the possible situation of a system in the event that heat is injected to the system from a source?

- Ans ☒ A. A positive work will be done by the system.
- ☐ B. The internal energy of system remains unchanged.
- ☐ C. System will not reject any heat to the surrounding
- ☐ D. The system will not do any work.

Question Type : MCQ
Question ID : 95001735
Status : Answered
Chosen Option : A
Marks : 1

Q.7 At a marble surface a block of mass 4 kg slides with an initial velocity of 8 m/s. Find out the coefficient of friction of the surface if after 10 seconds the velocity of the block is reduced to half.

- Ans ☐ A. 0.08
- ☐ B. 0.06
- ☐ C. 0.02
- ☒ D. 0.04

Question Type : MCQ
Question ID : 95001712
Status : Answered
Chosen Option : C
Marks : 0

Q.8 Which of the following laws is NOT stated by Kepler?

- Ans ☒ A. Law of gravity
- ☐ B. Law of periods
- ☐ C. Law of areas
- ☐ D. Law of orbits

Question Type : MCQ
Question ID : 95001721
Status : Answered
Chosen Option : A
Marks : 1

Q.9 With the application of a constant load P on a spring a tension T is developed in it. If the energy stored inside the spring is E by the x elongation of spring, calculate the spring constant.

- Ans ☒ A. $\frac{T^2}{2E}$
- ☐ B. $\frac{T^2}{4E}$
- ☐ C. $\frac{4E}{T^2}$
- ☐ D. $\frac{2T}{E^3}$

Question Type : MCQ
Question ID : 95001727
Status : Answered
Chosen Option : B
Marks : 0

Q.10 There are two distinct band of energies (called valence band and conduction band) in which the electrons in a material lie. Which of the following statements correctly Describe the properties of energy bands?

- Ans ☒ A. Valence band energies are high as compared to conduction band energies.
- ☒ B. All energy levels in the valence band are filled while energy levels in the conduction band may be fully empty or partially filled.
- ☒ C. The electrons in the valence band are free to move in a solid and are responsible for the conductivity
- ☒ D. The extent of conductivity depends upon the energy gap between the bottom of valence band and the top of the conduction band.

Question Type : MCQ
Question ID : 95001766
Status : Answered
Chosen Option : B
Marks : 1

Q.11 The property of a thermodynamic substance that is independent of its bulk mass is.

- Ans ☒ A. Temperature
- ☒ B. Entropy
- ☒ C. Enthalpy
- ☒ D. Specific heat capacity

Question Type : MCQ
Question ID : 95001730
Status : Answered
Chosen Option : C
Marks : 0

Q.12 What is the accurate relationship between water density and temperature?

- Ans ☒ A. Density linearly decreases with temperature
- ☒ B. Density first increases with temperature then decreases
- ☒ C. Density remains constant with increase in temperature
- ☒ D. Density first decreases with temperature then increases

Question Type : MCQ
Question ID : 95001736
Status : Answered
Chosen Option : B
Marks : 1

Q.13 In the number 0.0003364 how many significant figures are there?

- Ans ☒ A. 3
- ☒ B. 7
- ☒ C. 4
- ☒ D. 5

Question Type : MCQ
Question ID : 9500171
Status : Answered
Chosen Option : C
Marks : 1

Q.14 If a bullet fired by a gunman has a mass of 60 g and velocity of 300 m/s, after traveling in an air resistance force of 20 N the kinetic energy of the bullet is reduced to 20%. Find out the reduction in velocity of the bullet.

- Ans ☒ A. 20%
☒ B. 80%
☒ C. 55.3%
☒ D. 44.7%

Question Type : MCQ
Question ID : 95001716
Status : Answered
Chosen Option : C
Marks : 1

Q.15 At an angle of 30 degrees, a proton enters a magnetic field of 4.8×10^{-4} T with a velocity of 5×10^5 m/s. The electron's circular path has a radius of:

- Ans ☒ A. 1.18 cm
☒ B. 13 cm
☒ C. 4.3 cm
☒ D. 1.3 cm

Question Type : MCQ
Question ID : 95001750
Status : Answered
Chosen Option : C
Marks : 0

Q.16 The primary coil of a transformer receives a 60 Hz AC with a peak value of 1.2 Ampere. The approximate average value of the induced voltage is _____ if the primary and secondary mutual inductances are 1.8 Henry.

- Ans ☒ A. 240 volts
☒ B. 482 volts
☒ C. 518 volts
☒ D. 380 volts

Question Type : MCQ
Question ID : 95001755
Status : Answered
Chosen Option : A
Marks : 0

Q.17 A ball is dropped from a bus moving with constant acceleration. If the air resistance is neglected, in which direction the acceleration will act on the ball after the moment of dropping off?

- Ans ☒ A. In vertical direction only
☒ B. In both the direction
☒ C. No acceleration will be there
☒ D. In horizontal direction only

Question Type : MCQ
Question ID : 95001710
Status : Answered
Chosen Option : B
Marks : 0

Q.18 For a hydrogen-like atom or ion, how many times wider is the gap between the energy levels with $n = 4$ and $n = 5$ than the space between the energy levels with $n = 9$ and $n = 10$?

- Ans ☒ A. 0.63
☒ B. 0.58
☒ C. 0.38
☒ D. 0.47

Question Type : MCQ
Question ID : 95001763
Status : Answered
Chosen Option : B
Marks : 0

Q.19 Calculate a medium's refractive index in which a plane electromagnetic wave $E_x = 50 \cos(8 \times 10^8 t + 6x)$ V/m travels.

- Ans ☒ A. 4.2
☒ B. 2
☒ C. 3.25
☒ D. 2.25

Question Type : MCQ
Question ID : 95001758
Status : Answered
Chosen Option : C
Marks : 0

Q.20 For a projectile if the escape speed from Earth is V_E and from another planet the escape speed is $2V_E$ What should be the radius of the planet. Consider the acceleration due to the gravity of the planet is same as the Earth.

- Ans ☒ A. Equal to the radius of Earth
☒ B. Twice the radius of Earth
☒ C. Half the radius of Earth
☒ D. Four times the radius of Earth

Question Type : MCQ
Question ID : 95001722
Status : Answered
Chosen Option : A
Marks : 0

Q.21 What should be the minimum value of energy corresponding to 7000 nm wavelength so that it can be detected by a P-N photodiode having the semiconductor with band gap of 3.5 eV?

- Ans ☒ A. 4.8×10^{-21} J
☒ B. 2.83×10^{-20} J
☒ C. 5.6×10^{-20} J
☒ D. 5.6×10^{-19} J

Question Type : MCQ
Question ID : 95001765
Status : Answered
Chosen Option : B
Marks : 0

Q.22 Which of the following laws talks about momentum?

- Ans ☒ A. Newton's first law of motion
- ☒ B. Newton's third law of motion
- ☒ C. Galileo's law
- ☒ D. Newton's second law of motion

Question Type : MCQ
Question ID : 95001711
Status : Answered
Chosen Option : D
Marks : 1

Q.23 What does 200°C translate to in Fahrenheit?

- Ans ☒ A. 392 °F
- ☒ B. 300 °F
- ☒ C. 360 °F
- ☒ D. 292 °F

Question Type : MCQ
Question ID : 95001733
Status : Answered
Chosen Option : D
Marks : 0

Q.24 In a specific situation, a rabbit's heart is pounding at 156 beats per minute. What time period does this heartbeat have?

- Ans ☒ A. 0.38 seconds
- ☒ B. 2.6 seconds
- ☒ C. 0.86 seconds
- ☒ D. 1.2 seconds

Question Type : MCQ
Question ID : 95001738
Status : Answered
Chosen Option : B
Marks : 0

Q.25 Fermi is a unit to measure length is having dimensions of order:

- Ans ☒ A. 10^{-12} m
- ☒ B. 10^{-12} mm
- ☒ C. 10^{-15} mm
- ☒ D. 10^{-12} cm

Question Type : MCQ
Question ID : 9500173
Status : Answered
Chosen Option : A
Marks : 0

Q.26 A light bulb filament has a resistance of $50\ \Omega$ at room temperature ($25\ ^\circ\text{C}$). If the resistance is $120\ \Omega$ and the resistor's material has a temperature coefficient of $1.4 \times 10^{-3}\ ^\circ\text{C}^{-1}$, what temperature is the element at?

- Ans
- ☒ A. $780\ ^\circ\text{C}$
 - ☒ B. $1125\ ^\circ\text{C}$
 - ☒ C. $1025\ ^\circ\text{C}$
 - ☒ D. $850\ ^\circ\text{C}$

Question Type : MCQ
Question ID : 95001747
Status : Answered
Chosen Option : B
Marks : 0

Q.27 What are the magnitude and kind of the force between two tiny charged particles with charges of $5 \times 10^{-6}\ \text{C}$ and $9 \times 10^{-6}\ \text{C}$ that are separated by 90 cm in air?

- Ans
- ☒ A. $0.5\ \text{N}$, attractive
 - ☒ B. $5 \times 10^{-2}\ \text{N}$, repulsive
 - ☒ C. $0.45\ \text{N}$, attractive
 - ☒ D. $0.5\ \text{N}$, repulsive

Question Type : MCQ
Question ID : 95001743
Status : Answered
Chosen Option : C
Marks : 0

Q.28 Adiabatic walls are insulating structure's that prevent flow of _____ through them.

- Ans
- ☒ A. heat
 - ☒ B. mass
 - ☒ C. charge
 - ☒ D. work

Question Type : MCQ
Question ID : 95001729
Status : Answered
Chosen Option : A
Marks : 1

Q.29 If the position-time curve of particle is a horizontal line then it represents that the:

- Ans
- ☒ A. Particle moving with constant acceleration.
 - ☒ B. Particle is at rest.
 - ☒ C. Particle is moving with positive velocity.
 - ☒ D. Particle is moving with negative velocity.

Question Type : MCQ
Question ID : 9500176
Status : Answered
Chosen Option : B
Marks : 1

Q.30 The moment of a linear force taken from a certain distance is called:

- Ans ☒ A. pressure
☒ B. torque
☒ C. momentum
☒ D. work

Question Type : MCQ
Question ID : 95001717
Status : Answered
Chosen Option : B
Marks : 1

Q.31 Two metal wires, one of Aluminium and the other of steel, are connected end to end. The lengths of both the wires are 3.2 m and 2.4 m, respectively. They are elongated with a constant load and total change in length is found to be 100 mm. Calculate the value of load if the diameter of both wires is 5 mm.

(Given that Young's modulus of Aluminium is $70 \times 10^9 \text{ N/m}^2$ and of steel is $200 \times 10^9 \text{ N/m}^2$.)

- Ans ☒ A. 8.95 kN
☒ B. 4.55 kN
☒ C. 34 kN
☒ D. 2.5 kN

Question Type : MCQ
Question ID : 95001728
Status : Answered
Chosen Option : B
Marks : 0

Q.32 The time period of a satellite orbiting at the height of five times the radius of Earth is T. Find out the time period of another satellite orbiting at a height of ten times of the radius of Earth.

- Ans ☒ A. $\frac{2T}{\sqrt{2}}$
☒ B. $3\sqrt{2} T$
☒ C. $8\sqrt{2} T$
☒ D. $2\sqrt{2} T$

Question Type : MCQ
Question ID : 95001724
Status : Answered
Chosen Option : D
Marks : 1

Q.33 In an expander, an ideal gas goes through the adiabatic expansion process. If the adiabatic expansion coefficient is γ , the accurate expression for P, V, and T of the gas is:

- Ans ☒ A. $PV\gamma-1 = \text{constant}$
☒ B. $TV\gamma-1 = \text{constant}$
☒ C. $T/V\gamma-1 = \text{constant}$
☒ D. $TV\gamma = \text{constant}$

Question Type : MCQ
Question ID : 95001732
Status : Answered
Chosen Option : D
Marks : 0

Q.34 A 14.5 MeV α -particle is 180° deflected away from a silver nucleus while approaching towards it. What is its minimum distance from the nucleus?

- Ans ☒ A. $5.8 \times 10^{-15} \text{ m}$
☒ B. $9.3 \times 10^{-15} \text{ m}$
☒ C. $2.8 \times 10^{-15} \text{ m}$
☒ D. $3.4 \times 10^{-15} \text{ m}$

Question Type : MCQ
Question ID : 95001764
Status : Answered
Chosen Option : D
Marks : 0

Q.35 A mass m is thrown vertically upward. The velocity-time variation of the motion is a/an:

- Ans ☒ A. inclined straight line
☒ B. parabola
☒ C. vertical straight line
☒ D. horizontal straight line

Question Type : MCQ
Question ID : 9500177
Status : Answered
Chosen Option : B
Marks : 0

Q.36 The Pressure-Volume curve shows two processes: an isothermal process and an adiabatic process. Which of the following about both processes is true?

- Ans ☒ A. The slope of the isothermal process is greater than that of the adiabatic process and both have non-linear curves.
☒ B. The slope of the isothermal process is greater than that of the adiabatic process and both have linear curves.
☒ C. The slope of the adiabatic process is greater than that of the isothermal process and both have non-linear curves.
☒ D. The slope of the adiabatic process is greater than that of the isothermal process and both have linear curves.

Question Type : MCQ
Question ID : 95001731
Status : Answered
Chosen Option : A
Marks : 0

Q.37 A planet is being observed from two different points on Earth. The parallax angle made by the planet between the two points is $2^\circ 37'$. Calculate the distance between Earth and the planet considering the diameter of earth is $1.276 \times 10^7 \text{ m}$.

- Ans ☒ A. $2.9 \times 10^{10} \text{ m}$
☒ B. $2.8 \times 10^8 \text{ m}$
☒ C. $2.9 \times 10^9 \text{ m}$
☒ D. $3.5 \times 10^7 \text{ m}$

Question Type : MCQ
Question ID : 9500174
Status : Answered
Chosen Option : B
Marks : 1

Q.38 A block with 1.5 kg of mass will lengthen a particular light spring that is hanging vertically by 10 cm when suspended from it. When a 3 kg block is suspended from a spring and pulled through 15 cm before being let go, its maximum velocity is:

- Ans ☒ A. 0.85 m/s
☒ B. 1.5 m/s
☒ C. 2.04 m/s
☒ D. 1.06 m/s

Question Type : MCQ
Question ID : 95001741
Status : Answered
Chosen Option : B
Marks : 0

Q.39 A particle with a mass of 500 g and a charge of 20 μC is released after being held at rest in an even electric field of 15 v/m. The kinetic energy that the particle attains after travelling 5 cm is:

- Ans ☒ A. 15×10^{-6} Joules
☒ B. 7.75×10^{-3} Joules
☒ C. 3.5×10^{-6} Joules
☒ D. 2.46×10^{-7} Joules

Question Type : MCQ
Question ID : 95001745
Status : Answered
Chosen Option : B
Marks : 0

Q.40 By taking a reading of the balancing point length l , a meter bridge is used to calculate the resistance of an unknown wire. The new balancing point is anticipated to be _____ if the wire is replaced by another wire made of the same material but with thrice the length and half the thickness if $l = 2$ cm.

- Ans ☒ A. 10 cm
☒ B. 12 cm
☒ C. 6 cm
☒ D. 24 cm

Question Type : MCQ
Question ID : 95001748
Status : Answered
Chosen Option : A
Marks : 0

Q.41 The rectilinear motion of any particles is a motion that follows a:

- Ans ☒ A. circular path
☒ B. parabolic path
☒ C. straight line path
☒ D. random path

Question Type : MCQ
Question ID : 9500175
Status : Answered
Chosen Option : D
Marks : 0

Q.42 Match the electromagnetic waves in Column I with their correct use in Column II

Column I	Column II
(A) Microwaves	(1) In satellites to be used by the military
(B) Radio Waves	(2) Aircraft navigation using RADAR
(C) UV rays	(3) To provide signal to television and cellular phones
(D) Infrared waves	(4) To test the mineral sample

- Ans  A. (A)-(2) ; (B)-(1) ; (C)-(4) ; (D)-(3)
-  B. (A)-(2) ; (B)-(3) ; (C)-(4) ; (D)-(1)
-  C. (A)-(1) ; (B)-(4) ; (C)-(3) ; (D)-(2)
-  D. (A)-(3) ; (B)-(2) ; (C)-(4) ; (D)-(1)

Question Type : MCQ
Question ID : 95001757
Status : Answered
Chosen Option : A
Marks : 0

Q.43 Determine the energy value of 2.5 g of the matter.

- Ans  A. 15.8×10^{10} kJ
-  B. 2.5×10^{10} kJ
-  C. 22.5×10^{10} kJ
-  D. 3×10^{10} kJ

Question Type : MCQ
Question ID : 95001762
Status : Answered
Chosen Option : C
Marks : 1

Q.44 What is the ratio of rotational energy to translation energy when a spherical shell rolls on a plane surface without sliding?

- Ans  A. 1 : 2
-  B. 5 : 2
-  C. 2 : 3
-  D. 3 : 2

Question Type : MCQ
Question ID : 95001718
Status : Answered
Chosen Option : C
Marks : 1

Q.45 How much torque should be applied to a rotating ring to stop it in two minutes, if it is rotating about a vertical axis with 120 rpm? (The moment of inertia of the ring about this axis is 5 kg-m².)

- Ans ☒ A. $\frac{\pi}{6}$ Nm
- ☐ B. $\frac{2\pi}{15}$ Nm
- ☐ C. $\frac{2\pi}{3}$ Nm
- ☐ D. $\frac{\pi}{4}$ Nm

Question Type : MCQ
Question ID : 95001720
Status : Answered
Chosen Option : B
Marks : 0

Q.46 For constructing an astronomical telescope, four lenses with focal lengths of +13 cm, +26 cm, +175 cm and +350 cm are available. The focal length of the eyepiece in order to generate maximum magnification is:

- Ans ☐ A. -350 cm
- ☒ B. +13 cm
- ☐ C. -13 cm
- ☐ D. +350 cm

Question Type : MCQ
Question ID : 95001760
Status : Answered
Chosen Option : C
Marks : 0

Q.47 $V = 5x^2 + 9$ volt gives the electric potential V at any point (x, y, or z) in space. The electric field at the position (1, 0, 2) is equal to:

- Ans ☐ A. 10 v/m along positive x-axis
- ☒ B. 10 v/m along negative x-axis
- ☐ C. 12 v/m along negative x-axis
- ☐ D. 14 v/m along positive x-axis

Question Type : MCQ
Question ID : 95001744
Status : Answered
Chosen Option : B
Marks : 1

Q.48 A mass m is dropped from a certain height with zero velocity at time t = 0 sec. Another mass m was thrown at time t = 10 seconds with velocity v. If both the balls meet at t = 22s find out the value of v.

- Ans ☐ A. 161.5 m/s
- ☒ B. 141.67 m/s
- ☐ C. 45.7 m/s
- ☐ D. 75 m/s

Question Type : MCQ
Question ID : 9500178
Status : Answered
Chosen Option : B
Marks : 1

Q.49 In a wave with a frequency of 160 Hz, the phase difference between two sites separated by 1.0 m is equal to $\pi/2$. The wave speed is:

- Ans ☒ A. 640 m/s
☒ B. 480 m/s
☒ C. 520 m/s
☒ D. 380 m/s

Question Type : MCQ
Question ID : 95001740
Status : Answered
Chosen Option : B
Marks : 0

Q.50 Match the Column I with the Column II correctly.

Column I	Column II
(A) Inductive circuit	(1) Current leads
(B) RL circuit	(2) Voltage leads
(C) Resistive circuit	(3) Voltage and current have no phase difference.
(D) RC circuit	(4) Phase difference between voltage and current 90°

- Ans ☒ A. (A)-(4) ; (B)-(2) ; (C)-(1) ; (D)-(3)
☒ B. (A)-(2) ; (B)-(4) ; (C)-(3) ; (D)-(1)
☒ C. (A)-(4) ; (B)-(2) ; (C)-(3) ; (D)-(1)
☒ D. (A)-(3) ; (B)-(2) ; (C)-(4) ; (D)-(1)

Question Type : MCQ
Question ID : 95001754
Status : Answered
Chosen Option : C
Marks : 1

Q.51 The triple points of water are 150 A and 450 B on the two absolute scales A and B. What connection exists between T_A and T_B ?

- Ans ☒ A. $T_A = 2T_B$
☒ B. $T_A = T_B$
☒ C. $T_A = \frac{3T_B}{2}$
☒ D. $T_A = \frac{T_B}{3}$

Question Type : MCQ
Question ID : 95001734
Status : Answered
Chosen Option : D
Marks : 0

Q.52 In a simple harmonic motion, the acceleration amplitude is equal to:

- Ans ☒ A. ω^2 times the displacement
 ☐ B. ω times the displacement
 ☐ C. ω^2 times the velocity
 ☐ D. ω times the square of displacement

Question Type : MCQ
Question ID : 95001737
Status : Answered
Chosen Option : D
Marks : 0

Q.53 An electromagnetic wave has a magnetic field equal to 4.2×10^{-5} . Find the value of the electric field corresponding to the magnetic field.

- Ans ☒ A. 12.6×10^3 V/m
 ☐ B. 2.6×10^3 V/m
 ☐ C. 3.4×10^3 V/m
 ☐ D. 14.3×10^3 V/m

Question Type : MCQ
Question ID : 95001756
Status : Answered
Chosen Option : B
Marks : 0

Q.54 In an AC circuit to control current the device that is used in place of rheostat is called:

- Ans ☒ A. chock coil
 ☐ B. capacitor
 ☐ C. battery
 ☐ D. resistance

Question Type : MCQ
Question ID : 95001752
Status : Answered
Chosen Option : A
Marks : 1

Q.55 The potential energy required to lift a stone of mass 25 kg from 10 meter height to 20 meter height on the moon is approximately equal to:

- Ans ☒ A. 417 Joules
 ☐ B. 2500 Joules
 ☐ C. 512 Joules
 ☐ D. 3000 Joules

Question Type : MCQ
Question ID : 95001723
Status : Answered
Chosen Option : C
Marks : 0

Q.56 A car has a linear motion with constant momentum. In such a case the parameter that must be constant is:

- Ans ☒ A. velocity
☒ B. acceleration
☒ C. power
☒ D. torque

Question Type : MCQ
Question ID : 9500179
Status : Answered
Chosen Option : A
Marks : 1

Q.57 The point of elastic limit on the stress strain curve is also known as:

- Ans ☒ A. fracture point
☒ B. plastic deformation point
☒ C. yield point
☒ D. proportional limit

Question Type : MCQ
Question ID : 95001725
Status : Answered
Chosen Option : A
Marks : 0

Q.58 Match the Column I with the Column II correctly.

Column I	Column II
(A) At the dipole centre	(1) Potential energy is zero
(B) A dipole placed at 90° to a electric field	(2) Electric field is zero
(C) Inside a charge conductor that is placed in a uniform electric field	(3) Electric potential is zero
(D) for a dipole placed in stable equilibrium	(4) Torque produced is zero

- Ans ☒ A. (A)-(3) ; (B)-(2) ; (C)-(4) ; (D)-(1)
☒ B. (A)-(2) ; (B)-(3) ; (C)-(4) ; (D)-(1)
☒ C. (A)-(2) ; (B)-(1) ; (C)-(4) ; (D)-(3)
☒ D. (A)-(3) ; (B)-(1) ; (C)-(2) ; (D)-(4)

Question Type : MCQ
Question ID : 95001761
Status : Answered
Chosen Option : A
Marks : 0

Q.59 An object is moving with a certain velocity. If a force is applied in the direction of the velocity than the work done by the force will be:

- Ans ☒ A. zero
☒ B. infinite
☒ C. negative
☒ D. positive

Question Type : MCQ
Question ID : 95001715
Status : Answered
Chosen Option : D
Marks : 1

Q.60 Which of the following units is NOT an SI base unit?

- Ans ☒ A. Candela
☒ B. Bar
☒ C. Kelvin
☒ D. Mole

Question Type : MCQ
Question ID : 9500172
Status : Answered
Chosen Option : A
Marks : 0

Q.61 Match the Column I (Physical quantity) with the Column II (SI unit) correctly.

Column I	Column II
(A) Voltage	(1) Ampere
(B) Current	(2) Volt
(C) Capacitance	(3) Ohm
(D) Resistance	(4) Farad

- Ans ☒ A. (A)-(2) ; (B)-(1) ; (C)-(4) ; (D)-(3)
☒ B. (A)-(3) ; (B)-(2) ; (C)-(1) ; (D)-(4)
☒ C. (A)-(1) ; (B)-(3) ; (C)-(2) ; (D)-(4)
☒ D. (A)-(1) ; (B)-(2) ; (C)-(3) ; (D)-(4)

Question Type : MCQ
Question ID : 95001742
Status : Answered
Chosen Option : A
Marks : 1

Q.62 Select the correct statement regarding the centre of mass of a body.

- Ans ☒ A. The position of the centre of mass depends on the co-ordinate system chosen.
☒ B. The centre of mass can coincide with the geometrical centre of a body.
☒ C. The centre of mass should always lie on the body.
☒ D. The centre of mass of a system of two particles does not always lie on the line joining the particles.

Question Type : MCQ
Question ID : 95001719
Status : Answered
Chosen Option : C
Marks : 0

Q.63 Regarding the 'Distributive Law' select the wrong statement:

- Ans ☒ A. The union of sets is distributive over intersection.
- ☒ B. The distributive law is valid for matrix multiplication.
- ☒ C. Addition is distributive over multiplication.
- ☒ D. Multiplication is distributive over addition.

Question Type : MCQ
Question ID : 95001714
Status : Answered
Chosen Option : C
Marks : 1

Q.64 Two parallel, long wires, spaced 7 cm apart, each carry a 12 A current. The force generated to each wire's unit length equals:

- Ans ☒ A. $4.114 \times 10^{-5} \text{ N}$
- ☒ B. 41.14 N
- ☒ C. $41.14 \times 10^{-3} \text{ N}$
- ☒ D. $41.14 \times 10^{-5} \text{ N}$

Question Type : MCQ
Question ID : 95001751
Status : Answered
Chosen Option : D
Marks : 1

Q.65 If the displacement of a harmonically oscillating point becomes half of the amplitude after 3 seconds, then calculate the time period of motion. Take initial phase as zero.

- Ans ☒ A. 36 seconds
- ☒ B. 12 seconds
- ☒ C. 24 seconds
- ☒ D. 48 seconds

Question Type : MCQ
Question ID : 95001739
Status : Answered
Chosen Option : B
Marks : 0

Q.66 We can determine the direction of force on the conductor by using Fleming's left hand rule by:

- Ans ☒ A. thumb
- ☒ B. forefinger
- ☒ C. middle finger
- ☒ D. index finger

Question Type : MCQ
Question ID : 95001749
Status : Answered
Chosen Option : B
Marks : 0

Q.1 Identify the option that arranged the following in correct order of decreasing stability of different carbocations.

- Ans
- ☒ A. $\text{RC}^+ = \text{CH}_2 > \text{CH}_3^+ > (\text{C}_6\text{H}_5)_3\text{C}^+ > (\text{CH}_3)_3\text{C}^+$
 - ☒ B. $(\text{C}_6\text{H}_5)_3\text{C}^+ > \text{CH}_3^+ > (\text{CH}_3)_3\text{C}^+ > \text{RC}^+ = \text{CH}_2$
 - ☒ C. $(\text{CH}_3)_3\text{C}^+ > \text{RC}^+ = \text{CH}_2 > (\text{C}_6\text{H}_5)_3\text{C}^+ > \text{CH}_3^+$
 - ☒ D. $(\text{C}_6\text{H}_5)_3\text{C}^+ > (\text{CH}_3)_3\text{C}^+ > \text{RC}^+ = \text{CH}_2 > \text{CH}_3^+$

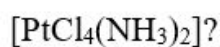
Question Type : MCQ
Question ID : 95001790
Status : Answered
Chosen Option : A
Marks : 0

Q.2 Which of the following pairs show the puckered ring structure?

- Ans
- ☒ A. H_2S_3 and S_8
 - ☒ B. S_8 and Se_8
 - ☒ C. O_2 and O_3
 - ☒ D. H_2S_3 and H_2S_4

Question Type : MCQ
Question ID : 950017109
Status : Answered
Chosen Option : B
Marks : 1

Q.3 How many ions are present in coordination compounds of platinum in



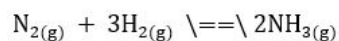
- Ans
- ☒ A. 4
 - ☒ B. 0
 - ☒ C. 3
 - ☒ D. 5

Question Type : MCQ
Question ID : 950017115
Status : Answered
Chosen Option : B
Marks : 1

Q.4 At equilibrium, the concentrations of N_2 , H_2 and NH_3 in a sealed vessel at 800K are:

$N_2 = 3.0 \times 10^{-3} \text{ M}$, $H_2 = 4.2 \times 10^{-3} \text{ M}$ and $NH_3 = 2.8 \times 10^{-3} \text{ M}$

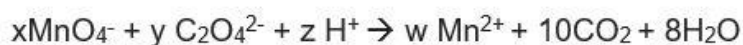
Calculate the equilibrium constant K_c for the reaction:



- Ans
- ☒ A. $4.527 \times 10^4 \text{ Lmol}^{-1}$
 - ☒ B. $3.527 \times 10^4 \text{ L}^2\text{mol}^{-2}$
 - ☒ C. $3.527 \times 10^{-4} \text{ Lmol}^{-1}$
 - ☒ D. $4.527 \times 10^{-4} \text{ L}^2\text{mol}^{-2}$

Question Type : MCQ
Question ID : 95001781
Status : Answered
Chosen Option : C
Marks : 0

Q.5 In the given balanced equation, find the coefficient of x, y, z and w.



- Ans
- ☒ A. 2, 5, 16, 2
 - ☒ B. 16, 2, 10, 2
 - ☒ C. 2, 16, 5, 2
 - ☒ D. 3, 5, 10, 2

Question Type : MCQ
Question ID : 95001783
Status : Answered
Chosen Option : A
Marks : 1

Q.6 Which salt is used in Dimetapp?

- Ans
- ☒ A. Terfenadine
 - ☒ B. Brompheniramine
 - ☒ C. Ranitidine
 - ☒ D. Cimetidine

Question Type : MCQ
Question ID : 950017130
Status : Answered
Chosen Option : C
Marks : 0

Q.7 Match the following.

Chemical reaction	Catalyst
A) Oxidation of a primary alcohol to carboxylic acid	i) Conc. H_2SO_4 at 443K
B) Benzyl alcohol to benzoic acid	ii) NaBH_4 or Ni/H_2
C) Butane-2-one to butan-2-ol	iii) Acidified or alkaline KMnO_4
D) Dehydration of propane-2-ol to propene	iv) Acidified $\text{K}_2\text{Cr}_2\text{O}_7$ or KMnO_4

Ans ☒ A. A-iv, B-iii, C- ii, D- i

☒ B. A-i, B-iv, C-iii, D-ii

☒ C. A-ii, B-i, C-iii, D-iv

☒ D. A-i, B-ii, C-iii, D-iv

Question Type : MCQ

Question ID : 950017122

Status : Answered

Chosen Option : C

Marks : 0

Q.8 Which of the following statements regarding abnormal molar masses are FALSE?

- a) The solution should be dilute.
b) The solute must not dissociate or associate in solution.
c) The solution should not be dilute.
d) The solute must dissociate or associate in solution.

Ans ☒ A. b and c

☒ B. a and d

☒ C. c and d

☒ D. a and b

Question Type : MCQ

Question ID : 95001799

Status : Answered

Chosen Option : C

Marks : 0

Q.9 In the presence of dil.HCl or NaOH, cyanobenzene gives:

Ans ☒ A. benzamide

☒ B. benzonitrile

☒ C. benzylamine

☒ D. benzoic acid

Question Type : MCQ

Question ID : 950017118

Status : Answered

Chosen Option : B

Marks : 0

Q.10 Synthetic detergents are mainly classified into _____ categories?

Ans ☒ A. 4

☒ B. 2

☒ C. 3

☒ D. 6

Question Type : MCQ

Question ID : 950017132

Status : Answered

Chosen Option : B

Marks : 0

Q.11 Which of the following statements is INCORRECT about Benzenediazonium chloride?

- Ans ☒ A. It decomposes easily in the dry state.
- ☒ B. It is a colourless crystalline solid.
- ☒ C. It is soluble in water and is stable in cold.
- ☒ D. It is insoluble in water and is stable in hot water.

Question Type : MCQ
Question ID : 950017127
Status : Answered
Chosen Option : C
Marks : 0

Q.12 Identify the element that is used for the ignition of thermite charge in aluminothermy.

- Ans ☒ A. Al
- ☒ B. K
- ☒ C. Be
- ☒ D. Mg

Question Type : MCQ
Question ID : 95001786
Status : Answered
Chosen Option : A
Marks : 0

Q.13 How many structure of Benzene show resonance hybrid?

- Ans ☒ A. 2
- ☒ B. 3
- ☒ C. 6
- ☒ D. 1

Question Type : MCQ
Question ID : 95001794
Status : Answered
Chosen Option : B
Marks : 0

Q.14 Which of the following statements is INCORRECT about the collision theory?

- Ans ☒ A. When colliding, the molecules must possess the maximum amount of energy.
- ☒ B. When reaction occurs, there must be collisions between the reacting species.
- ☒ C. For effective collisions, the molecules should possess sufficient energy as well as orientation.
- ☒ D. Only a certain fraction of the total number of collisions are effective in forming the products.

Question Type : MCQ
Question ID : 950017104
Status : Answered
Chosen Option : D
Marks : 0

Q.15 which of the following solutions does NOT contain a solid solvent?

- Ans ☒ A. H₂ in palladium
☒ B. Amalgum of mercury with sodium
☒ C. Alloys
☒ D. I₂ vapour in air

Question Type : MCQ
Question ID : 95001798
Status : Answered
Chosen Option : D
Marks : 1

Q.16 A piece of copper metal weighing 5 g requires 3.85 J of heat to raise the temperature from 298 K to 300 K. What are the value of heat capacity and specific heat capacity of copper?

- Ans ☒ A. 0.1924 J/K and 2.934 J/gK
☒ B. 1.925 J/K and 0.385 J/gK
☒ C. 2.934 J/K and 0.1924 J/gK
☒ D. 0.385 J/K and 1.925 J/gK

Question Type : MCQ
Question ID : 95001780
Status : Answered
Chosen Option : B
Marks : 1

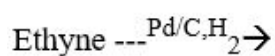
Q.17 Match the following.

Chemical formula	Chemical name
a. HOOC – CH ₂ – COOH	i) Adipic acid
b. HOOC - (CH ₂) ₂ - COOH	ii) Glutaric acid
c. HOOC - (CH ₂) ₃ - COOH	iii) Succinic acid
d. HOOC - (CH ₂) ₄ - COOH	iv) Malonic acid

- Ans ☒ A. a-i, b-ii, c-iii, d-iv
☒ B. a-iv, b-i, c-ii, d-iii
☒ C. a-iv, b-iii, c-ii, d-i
☒ D. a-iii, b-ii, c-i, d-iv

Question Type : MCQ
Question ID : 950017125
Status : Answered
Chosen Option : D
Marks : 0

Q.18 Complete the reaction:



- Ans
- ☐ A. Methane
 - ☐ B. Propane
 - ☒ C. Ethene
 - ☐ D. Ethane

Question Type : MCQ
Question ID : 95001793
Status : Answered
Chosen Option : D
Marks : 0

Q.19 Which of the following elements show the -1 to +7 oxidation state?

- Ans
- ☐ A. Zr
 - ☐ B. Pt
 - ☐ C. W
 - ☒ D. Re

Question Type : MCQ
Question ID : 950017111
Status : Answered
Chosen Option : C
Marks : 0

Q.20 Calculate the pressure of ammonia at 30°C and 3.37 g dm⁻³ density.

- Ans
- ☐ A. 7 bar
 - ☐ B. 3 bar
 - ☐ C. 12 bar
 - ☒ D. 5 bar

Question Type : MCQ
Question ID : 95001775
Status : Answered
Chosen Option : A
Marks : 0

Q.21 Which of the following statements is correct?

- Ans
- ☒ A. Argon is used for production of titanium.
 - ☐ B. Neon is used for filling electric bulbs because of its inert nature.
 - ☐ C. Kr-Xe has been used in the treatment of cancer.
 - ☐ D. Helium is used for filling sodium vapour lamps.

Question Type : MCQ
Question ID : 950017110
Status : Answered
Chosen Option : B
Marks : 0

Q.22 Identify the option that arrange the following elements in decreasing order of their metallic radius (pm).

- Ans  A. Li > Be > Mg > Al
 B. Be > Li > Al > Mg
 C. Mg > Li > Al > Be
 D. Al > Mg > Be > Li

Question Type : MCQ
Question ID : 95001770
Status : Answered
Chosen Option : C
Marks : 1

Q.23 Which of the following is a correct IUPAC name?

- Ans  A. 4-Bromopent-2-en-1-oic acid
 B. 2-Bromopent-5-en-3-oic acid
 C. 2-Bromopent-3-en-5-oic acid
 D. 4-Bromopent-1-en-2-oic acid

Question Type : MCQ
Question ID : 95001789
Status : Answered
Chosen Option : A
Marks : 1

Q.24 How many –OH groups are present in terpineol?

- Ans  A. 3
 B. 0
 C. 1
 D. 2

Question Type : MCQ
Question ID : 950017131
Status : Answered
Chosen Option : A
Marks : 0

Q.25 Match the columns.

Elements	Electronic configuration
a) Cr	i) $3d^7 4s^2$
b) Mn	ii) $3d^6 4s^2$
c) Fe	iii) $3d^5 4s^2$
d) Co	iv) $3d^5 4s^1$

Ans  A. a-iii, b-iv, c-ii, d-i

 B. a-iv, b-iii, c-ii, d-i

 C. a-iv, b-iii, c-i, d-ii

 D. a-iv, b-ii, c-iii, d-i

Question Type : MCQ

Question ID : 950017113

Status : Answered

Chosen Option : B

Marks : 1

Q.26 Which of the following statements is/are correct?

A) Aldehydes are easily oxidised to carboxylic acids on treatment with oxidising agents like nitric acid and potassium permanganate.

B) Ketones are generally oxidised under vigorous conditions, i.e., strong oxidising agents and at elevated temperatures.

C) Aldehydes are reduced to primary and secondary alcohol by NaBH_4 .

Ans  A. Only B

 B. Only C

 C. Only A

 D. A, B and C

Question Type : MCQ

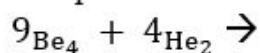
Question ID : 950017124

Status : Answered

Chosen Option : D

Marks : 1

Q.27 Complete this reaction:



Ans  A. $^{11}\text{C}_6 + ^1\text{n}_0$

 B. $^1\text{H}_1 + ^1\text{n}_0$

 C. $^{12}\text{C}_6 + ^1\text{n}_0$

 D. $^1\text{H}_0 + ^1\text{n}_0$

Question Type : MCQ

Question ID : 95001767

Status : Answered

Chosen Option : C

Marks : 1

Q.28 How many unit cells are shared with the corner unit of a cubic unit cell?

Ans ☒ A. 8

☐ B. 6

☐ C. 3

☐ D. 2

Question Type : MCQ

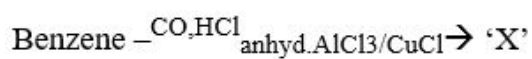
Question ID : 95001795

Status : Answered

Chosen Option : A

Marks : 1

Q.29 Complete this reaction:



Ans ☐ A. Benzal chloride

☐ B. Toluene

☒ C. Benzaldehyde

☐ D. Benzoyl chloride

Question Type : MCQ

Question ID : 950017123

Status : Answered

Chosen Option : D

Marks : 0

Q.30 The conductivity of 0.10 M KCl solution at 298 K is 0.0124 Scm^{-1} . Calculate its molar conductivity.

Ans ☐ A. $2.48 \text{ Scm}^2\text{mol}^{-1}$

☐ B. $248.0 \text{ Scm}^2\text{mol}^{-1}$

☒ C. $124.0 \text{ Scm}^2\text{mol}^{-1}$

☐ D. $1.245 \text{ Scm}^2\text{mol}^{-1}$

Question Type : MCQ

Question ID : 950017100

Status : Answered

Chosen Option : B

Marks : 0

Q.31 Which of the following statements about conductivity is INCORRECT?

Ans ☐ A. In an electrochemical cell, cathode is positive and anode is negative while in an electrolytic cell, anode is positive and cathode is negative.

☐ B. In an electrochemical cell, electrons move from anode to cathode in external circuit while in an electrolytic cell, electrons are supplied by the external battery.

☒ C. In an electrochemical cell, electrons move from anode to cathode in internal circuit while in an electrolytic cell, electrons are supplied by the external battery.

☐ D. In an electrochemical cell, the redox reaction is spontaneous while in an electrolytic cell, redox reaction is non-spontaneous.

Question Type : MCQ

Question ID : 950017101

Status : Answered

Chosen Option : C

Marks : 1

Q.32 When energy has been supplied to the system, what sign has conventions for q and w?

- Ans ☒ A. q is negative
☒ B. Both are negative
☒ C. Both are positive
☒ D. w is positive

Question Type : MCQ
Question ID : 95001779
Status : Answered
Chosen Option : B
Marks : 0

Q.33 Which of the following catalysts is used, when dioxygen react with ammonia to get nitric acid?

- Ans ☒ A. CCl_4
☒ B. CuCl_2
☒ C. V_2O_5
☒ D. Pt

Question Type : MCQ
Question ID : 950017108
Status : Answered
Chosen Option : A
Marks : 0

Q.34 Which of the following compounds on heating with Novolac undergoes cross linking to form an infusible solid mass called Bakelite?

- Ans ☒ A. Benzaldehyde
☒ B. Formaldehyde
☒ C. Phenol
☒ D. Benzoic acid

Question Type : MCQ
Question ID : 950017129
Status : Answered
Chosen Option : A
Marks : 0

Q.35 Which of the following oxides is most amphoteric in nature?

- Ans ☒ A. SiO_2
☒ B. MgO
☒ C. Al_2O_3
☒ D. P_2O_5

Question Type : MCQ
Question ID : 95001771
Status : Answered
Chosen Option : B
Marks : 0

Q.36 What is the composition of Mn in the monel metal?

- Ans ☒ A. 30
☒ B. 40
☒ C. 67
☒ D. 3

Question Type : MCQ
Question ID : 950017105
Status : Answered
Chosen Option : B
Marks : 0

Q.37 Which of the following pairs has the lowest viscosity?

- Ans ☒ A. Honey and water
☒ B. Water and kerosene oil
☒ C. Honey and kerosene oil
☒ D. Water and coconut oil

Question Type : MCQ
Question ID : 95001777
Status : Answered
Chosen Option : A
Marks : 0

Q.38 How many atomic orbitals are present in square planar geometry?

- Ans ☒ A. 7
☒ B. 3
☒ C. 4
☒ D. 2

Question Type : MCQ
Question ID : 95001772
Status : Answered
Chosen Option : B
Marks : 0

Q.39 Which of the following statements related to ethers is INCORRECT?

- Ans ☒ A. Ethers don't have any industrial uses.
☒ B. It is used as a refrigerant.
☒ C. When ethers are mixed with alcohol it acts as a denaturant and the mixture is used as a petrol substitute under the trade name 'natalite'.
☒ D. It is used in perfumery and in the manufacture of smokeless powder.

Question Type : MCQ
Question ID : 950017120
Status : Answered
Chosen Option : A
Marks : 1

Q.40 Which of the following statements is correct about Werner's Coordination Theory?

- Ans ☒ A. Every metal atom has a fixed number of secondary valencies i.e. it has a fixed coordination number.
- ☐ B. Primary valencies are satisfied by positive ions.
- ☐ C. In coordination compounds, metal atoms exhibit three types of valencies.
- ☐ D. The primary valencies are always directed towards the fixed positions in space and leads to geometry of the coordination compound.

Question Type : MCQ
Question ID : 950017116
Status : Answered
Chosen Option : A
Marks : 1

Q.41 Chloromethane gives methane with the treatment of:

- Ans ☐ A. Cao
- ☒ B. Zn/HCl
- ☐ C. Dry ether
- ☐ D. Cu

Question Type : MCQ
Question ID : 95001791
Status : Answered
Chosen Option : C
Marks : 0

Q.42 Calculate the half-life period of a first order reaction where the specific rate constant is 40 min^{-1} .

- Ans ☐ A. 27.72 min^{-1}
- ☐ B. 27.72 min
- ☒ C. 0.017325 min
- ☐ D. 0.01732 min^{-1}

Question Type : MCQ
Question ID : 950017103
Status : Answered
Chosen Option : C
Marks : 1

Q.43 In the ionic solid, if A^+ ions adopt ccp structure and B^- ions occupy all the tetrahedral voids, what will be the formula of the compound?

- Ans ☒ A. AB_2
- ☐ B. AB
- ☐ C. AB_3
- ☐ D. A_2B

Question Type : MCQ
Question ID : 95001797
Status : Answered
Chosen Option : C
Marks : 0

Q.44 Which of the following statement is INCORRECT?

- Ans ☒ A. The formation of terylene or dacron by the interaction of ethylene and terephthalic acid.
- ☒ B. The addition polymerisation of acrylonitrile in presence of a peroxide catalyst leads to the formation of polyacrylonitrile.
- ☒ C. Teflon is manufactured by heating tetrafluoroethene with a free radical or persulphate catalyst at high pressures.
- ☒ D. The formation of terylene or dacron by the interaction of ethylene glycol and terephthalic acid.

Question Type : MCQ
Question ID : 950017128
Status : Answered
Chosen Option : B
Marks : 0

Q.45 Which of the following statements is INCORRECT?

- Ans ☒ A. Group 18 has very high ionisation enthalpies.
- ☒ B. Elements having higher negative electron gain enthalpies are good reducing agents.
- ☒ C. F is the most electronegative element.
- ☒ D. In the periodic table, Fr is the largest element.

Question Type : MCQ
Question ID : 95001769
Status : Answered
Chosen Option : B
Marks : 1

Q.46 Identify the correct statement from among the following options.

- Ans ☒ A. If the temperature of the system is lower than that of the surrounding, then energy is gained by the system.
- ☒ B. If the temperature of the system is lower than that of the surrounding, then energy is lost by the system.
- ☒ C. If the temperature of the system is higher than that of the surrounding, then there is no effect on system.
- ☒ D. If the temperature of the system is higher than that of the surrounding, then energy is gained by the system.

Question Type : MCQ
Question ID : 95001778
Status : Answered
Chosen Option : A
Marks : 1

Q.47 Which of the following coordination compound does NOT behave like an electrolyte?

- Ans ☒ A. $\text{CoCl}_3 \cdot 5\text{NH}_3 \cdot \text{H}_2\text{O}$
- ☒ B. $\text{CoCl}_3 \cdot 3\text{NH}_3$
- ☒ C. $\text{CoCl}_3 \cdot 6\text{NH}_3$
- ☒ D. $\text{CoCl}_3 \cdot 4\text{NH}_3$

Question Type : MCQ
Question ID : 950017114
Status : Answered
Chosen Option : B
Marks : 1

Q.48 Which of the following reactants used with nascent hydrogen evolves from sodium and alcohol to form primary amine?

- Ans ☒ A. Bromoethane
☒ B. Ethyl cyanide
☒ C. Ethyl bromide
☒ D. Ethyliodide

Question Type : MCQ
Question ID : 950017117
Status : Answered
Chosen Option : B
Marks : 1

Q.49 Identify the pair that has the same number of unpaired electrons.

- Ans ☒ A. Sm^{+3} and Eu^{+3}
☒ B. La^{+3} and Eu^{+2}
☒ C. Lu^{+3} and Pr^{+3}
☒ D. Sm^{+2} and Eu^{+3}

Question Type : MCQ
Question ID : 950017112
Status : Answered
Chosen Option : B
Marks : 0

Q.50 Brownian movement is dependent on the:

- A) nature of the solvent
B) size of the particles
C) viscosity of solution

- Ans ☒ A. C and A
☒ B. A and B
☒ C. B and C
☒ D. A, B and C

Question Type : MCQ
Question ID : 950017106
Status : Answered
Chosen Option : C
Marks : 1

Q.51 Identify the element which does NOT have +1 oxidation state.

- Ans ☒ A. Tl
☒ B. In
☒ C. B
☒ D. Al

Question Type : MCQ
Question ID : 95001787
Status : Answered
Chosen Option : D
Marks : 0

Q.52 Clothes are washed more efficiently in hot water than in cold water due to:

- Ans ☒ A. decreased surface tension in hot water.
- ☒ B. Not effect of surface tension on cold and hot water.
- ☒ C. increased surface tension in cold water.
- ☒ D. increased surface tension in hot water.

Question Type : MCQ
Question ID : 95001776
Status : Answered
Chosen Option : D
Marks : 0

Q.53 Match the columns.

Chemical Name	Chemical formula
a) Corundum	i) $\text{KAl}_2(\text{Si}_3\text{AlO}_{10})(\text{OH})_2$
b) Cryolite	ii) KAlSi_3O_8
c) Orthoclase	iii) Na_3AlF_6
d) Mica	iv) Al_2O_3

- Ans ☒ A. a-iv, b-ii, c-iii, d-i
- ☒ B. a-iv, b-ii, c-i, d-iii
- ☒ C. a-iv, b-iii, c-ii, d-i
- ☒ D. a-i, b-iii, c-iv, d-ii

Question Type : MCQ
Question ID : 95001788
Status : Answered
Chosen Option : B
Marks : 0

Q.54 Which product is formed when heated benzene reacts with fuming sulphuric acid?

- Ans ☒ A. Benzenesulphonic acid and water
- ☒ B. Toluene and hydrochloric acid
- ☒ C. Benzenesulphonic acid and hydrochloric acid
- ☒ D. Toluene and water

Question Type : MCQ
Question ID : 95001792
Status : Answered
Chosen Option : C
Marks : 0

Q.55 Identify the option that arrange the following in increasing order of dipole moment of halogen atom.

- Ans ☒ A. $\text{H-F} > \text{H-Cl} > \text{H-Br} > \text{H-I}$
☐ B. $\text{H-F} > \text{H-Br} > \text{H-Cl} > \text{H-I}$
☐ C. $\text{H-I} > \text{H-Cl} > \text{H-Br} > \text{H-I}$
☐ D. $\text{H-I} > \text{H-Br} > \text{H-Cl} > \text{H-F}$

Question Type : MCQ
Question ID : 95001773
Status : Answered
Chosen Option : A
Marks : 1

Q.56 Which metal forms acetylide when directly heated with carbon?

- Ans ☐ A. Na
☐ B. K
☒ C. Li
☐ D. Fr

Question Type : MCQ
Question ID : 95001785
Status : Answered
Chosen Option : C
Marks : 1

Q.57 Which of the following bonds show(s) the dipole-dipole attractions?

- a) Ionic bond
b) Covalent bond
c) Hydrogen bond

- Ans ☐ A. Only a
☐ B. Only b
☒ C. Only c
☐ D. a, b and c

Question Type : MCQ
Question ID : 95001774
Status : Answered
Chosen Option : C
Marks : 1

Q.58 When phenol reacts with conc. sulphuric acid at 288-293 K, then what product will be formed?

- Ans ☒ A. 2-Hydroxy benzene sulphonic acid
☐ B. 4-Hydroxy benzene sulphonic acid
☐ C. 3-Hydroxy benzene sulphonic acid
☐ D. Benzene

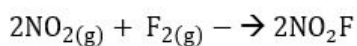
Question Type : MCQ
Question ID : 950017121
Status : Answered
Chosen Option : A
Marks : 1

Q.59 Which of the following compounds is NOT formed by aniline during sulphonation?

- Ans ☒ A. m-Sulphanilic acid
☐ B. Zwitter ion
☐ C. Anilinium hydrogensulphate
☐ D. p-Sulphanilic acid

Question Type : MCQ
Question ID : 950017126
Status : Answered
Chosen Option : C
Marks : 0

Q.60 Identify the rate expression according to law of mass action in the following.



- Ans ☐ A. $R = \frac{k[\text{NO}_2][\text{F}_2]}{2}$
☐ B. $R = k[\text{NO}_2][\text{F}_2]^2$
☐ C. $R = k[\text{NO}_2][\text{F}_2]$
☒ D. $R = k[\text{NO}_2]^2[\text{F}_2]$

Question Type : MCQ
Question ID : 950017102
Status : Answered
Chosen Option : D
Marks : 1

Q.61 Which of the following statement is correct about an electrolytic cell?

- A) Flow of electrons is from cathode to anode in solution.
B) Flow of electrons is from cathode to anode through internal supply.
C) Flow of electrons is from anode to cathode in solution.
D) Flow of electrons is from anode to cathode external supply.

- Ans ☐ A. Only A
☒ B. Only B
☐ C. Only D
☐ D. Only C

Question Type : MCQ
Question ID : 95001784
Status : Answered
Chosen Option : C
Marks : 0

Q.62 Which of the following does NOT represent a conjugate acid-base pair?

- Ans ☐ A. $\text{NH}_3 - \text{NH}_4^+$
☒ B. $\text{HCOOH} - \text{HCO}_3^-$
☐ C. $\text{H}_2\text{O} - \text{OH}^-$
☐ D. $\text{NH}_3 - \text{NH}_2^-$

Question Type : MCQ
Question ID : 95001782
Status : Answered
Chosen Option : B
Marks : 1

Q.63 Match the columns:

Spectral series of hydrogen	Release light in different series
A. Lyman	i) Infrared series
B. Balmer	ii) Visible series
C. Paschen	iii) Ultraviolet series

- Ans  A. A-i, B-iii, D-ii
 B. B-ii, C-i, D-iii
 C. A-iii, B-ii, C-i
 D. A-iii, C-i, D-ii

Question Type : MCQ
Question ID : 95001768
Status : Answered
Chosen Option : C
Marks : 1

Q.64 Thortveitite is an example of:

- Ans  A. sheet silicates
 B. cyclic silicates
 C. ortho silicates
 D. pyrosilicates

Question Type : MCQ
Question ID : 950017107
Status : Answered
Chosen Option : C
Marks : 0

Q.65 How many methyl groups are present in the benzene ring 'Cresol'?

- Ans  A. 0
 B. 3
 C. 2
 D. 1

Question Type : MCQ
Question ID : 950017119
Status : Answered
Chosen Option : B
Marks : 0

Q.66 Which of the following statements is INCORRECT?

- Ans  A. In hexagonal, three axes are of unequal length and two angles are of 90°.
 B. In cubic, all the three axes are of equal length and all angles are 90°.
 C. In monoclinic, three axes are of unequal length and two angles are of 90°.
 D. In tetragonal, all the three axes are at right angles to each other but only two axes are equal.

Question Type : MCQ
Question ID : 95001796
Status : Answered
Chosen Option : C
Marks : 0

Q.1 If in a class of 80 students, 30 students are interested in dance or music, 25 students are interested in dance and 12 students are interested in music, then the number of students interested in only dance is:

- Ans ☒ A. 18
☒ B. 16
☒ C. 17
☒ D. 15

Question Type : MCQ
Question ID : 950017161
Status : Not Answered
Chosen Option : --
Marks : 0

Q.2 The value of $\sqrt{-9} + \sqrt{-64} + \sqrt{-625}$ is:

- Ans ☒ A. 35
☒ B. $-36i$
☒ C. $36i$
☒ D. 36

Question Type : MCQ
Question ID : 950017170
Status : Not Answered
Chosen Option : --
Marks : 0

Q.3 The derivative of $y = x 2^x$ is:

- Ans ☒ A. $5^x (x \ln x + 1)$
☒ B. $3^x (x + 1)$
☒ C. $2^x (x \ln 2 + 1)$
☒ D. $2^x (x \ln x - 1)$

Question Type : MCQ
Question ID : 950017141
Status : Not Answered
Chosen Option : --
Marks : 0

Q.4 If $\binom{n}{5} = 5 P(n, 4)$ then the value of n is:

- Ans ☒ A. 604
☒ B. 600
☒ C. 602
☒ D. 601

Question Type : MCQ
Question ID : 950017180
Status : Not Answered
Chosen Option : --
Marks : 0

Q.5 A function $f: B \rightarrow A$ is defined as $f(x)=2x+3$ where $A=\{5,7,9\}$, $B=\{1,2,3\}$ is:

- Ans ☒ A. bijective
☐ B. injective
☐ C. constant function
☐ D. surjective

Question Type : MCQ
Question ID : 950017134
Status : Not Answered
Chosen Option : --
Marks : 0

Q.6 The general solution of $\frac{dy}{dx} - \frac{1}{x}y = 100xe^{2x}$ is:

- Ans ☐ A. $y = 50e^{2x} + C$
☒ B. $y = 50xe^{2x} + Cx$
☐ C. $y = e^{2x} + Cx$
☐ D. $y = 5xe^{2x} + C$

Question Type : MCQ
Question ID : 950017153
Status : Not Answered
Chosen Option : --
Marks : 0

Q.7 If $\sin(x) = \frac{1}{5}$ and $\cos(y) = -\frac{3}{5}$, x, y lies in second quadrant then the value of $\sin(x + y)$ is:

- Ans ☐ A. $\frac{3 + 4\sqrt{24}}{25}$
☐ B. $\frac{3}{25}$
☒ C. $\frac{-3 - 4\sqrt{24}}{25}$
☐ D. $\frac{24}{25}$

Question Type : MCQ
Question ID : 950017169
Status : Not Answered
Chosen Option : --
Marks : 0

Q.8 If $\int_0^5 f(x)dx = -9$, $\int_3^5 f(x)dx = -100$, then the value of $\int_0^3 f(x)dx$ is:

- Ans ☒ A. 81
☒ B. 71
☒ C. 61
☒ D. 91

Question Type : MCQ
Question ID : 950017148
Status : Not Answered
Chosen Option : --
Marks : 0

Q.9 The common region for inequations $2x - 5y \leq 7$ and $3x + 2y \geq 8$, $x \geq 0, y \geq 0$ contains which point?

- Ans ☒ A. (-1, 2)
☒ B. (3, 1)
☒ C. (0, 0)
☒ D. (-5, -6)

Question Type : MCQ
Question ID : 950017177
Status : Not Answered
Chosen Option : --
Marks : 0

Q.10 If $A = \{1,3,4,5,6\}$, $B = \{2,4,6,8\}$, $C = \{5,6,7,8\}$, then $(A \cup B) - C$ is:

- Ans ☒ A. {1,4,6}
☒ B. {1,3,5}
☒ C. {11,12,13,14}
☒ D. {1,2,3,4}

Question Type : MCQ
Question ID : 950017160
Status : Not Answered
Chosen Option : --
Marks : 0

Q.11 If the distance between the points (1, 2, 3) and (2, k, 6) is 10, then the value of k is:

- Ans A. 2, -8
B. 9, -8
C. 72, -78
D. 92, -88

Note: For this question, discrepancy is found in question/answer. Full Marks is being awarded to all candidates.

Question Type : MCQ
Question ID : 950017191
Status : Not Answered
Chosen Option : --
Marks : 0

Q.12 How many ways can 15 people be divided into 5 groups where 3 persons must be there in each group?

- Ans
- ☐ A. 15!
 - ☐ B. 3!
 - ☒ C. $\frac{(15)!}{5! \times (3!)^5}$
 - ☐ D. $\frac{(15)!}{(3!)^5}$

Question Type : MCQ
Question ID : 950017181
Status : Not Answered
Chosen Option : --
Marks : 0

Q.13 The period of $f(x) = \frac{1}{\sqrt{2}} (\sin(2x) + \cos(2x))$ is

- Ans
- ☐ A. 1
 - ☐ B. 2
 - ☐ C. 3π
 - ☒ D. π

Question Type : MCQ
Question ID : 950017166
Status : Not Answered
Chosen Option : --
Marks : 0

Q.14 The domain of $\arcsin (3x - 1) + \sqrt{x^2 - 3x + 2}$ is:

- Ans
- ☐ A. [0,1]
 - ☐ B. (2,3)
 - ☐ C. [1,2]
 - ☒ D. (0,1)

Question Type : MCQ
Question ID : 950017165
Status : Not Answered
Chosen Option : --
Marks : 0

Q.15

The determinant of a matrix $\begin{bmatrix} 1 & -2 & 3 \\ -3 & 2 & 1 \\ -2 & 3 & 1 \end{bmatrix}$ is:

Ans ☒ A. -18

☒ B. 17

☒ C. 18

☒ D. 16

Question Type : MCQ

Question ID : 950017138

Status : Not Answered

Chosen Option : --

Marks : 0

Q.16

If A and B are two independent random variables such that $P(A^c) = 0.6$, $P(B^c) = 0.8$ then $P(A \cap B)$ is:

Ans ☒ A. 0.8

☒ B. 0.08

☒ C. 0.6

☒ D. 0.7

Question Type : MCQ

Question ID : 950017197

Status : Not Answered

Chosen Option : --

Marks : 0

Q.17

The mean deviation from the median for the data 4, 8, 2, 1, 10, 12 is:

Ans ☒ A. 0.16

☒ B. 0.5

☒ C. 0.6

☒ D. 0.7

Question Type : MCQ

Question ID : 950017195

Status : Not Answered

Chosen Option : --

Marks : 0

Q.18

The centre of the ellipse $\frac{(2x-y+1)^2}{16} + \frac{(x+y)^2}{64} = 1$ is:

Ans ☒ A. (5,6)

☒ B. $\left(-\frac{1}{3}, \frac{1}{3}\right)$

☒ C. (1,2)

☒ D. $\left(-\frac{1}{2}, \frac{1}{2}\right)$

Question Type : MCQ

Question ID : 950017189

Status : Not Answered

Chosen Option : --

Marks : 0

Q.19 Two dice are thrown. What is the probability that maximum number will appear on one of the dice is 3?

- Ans
- ☐ A. $\frac{2}{36}$
- ☒ B. $\frac{5}{36}$
- ☐ C. $\frac{4}{36}$
- ☐ D. $\frac{1}{36}$

Question Type : MCQ
Question ID : 950017198
Status : Not Answered
Chosen Option : --
Marks : 0

Q.20 Let $z = x + iy$ be a complex number such that $|z - i| = \sqrt{5}$. Then z lies on:

- Ans
- ☐ A. Circle with centre $(-1, 1)$ and radius $\sqrt{3}$
- ☐ B. Parabola
- ☐ C. Ellipse
- ☒ D. Circle with centre $(0, 1)$ and radius $\sqrt{5}$

Question Type : MCQ
Question ID : 950017173
Status : Not Answered
Chosen Option : --
Marks : 0

Q.21 The sum of the series $8 - 1 + \frac{1}{8} - \frac{1}{16} + \dots$ is:

- Ans
- A. $\frac{68}{9}$
- B. $\frac{67}{9}$
- C. $\frac{72}{5}$
- D. $\frac{64}{9}$

Note: For this question, discrepancy is found in question/answer. Full Marks is being awarded to all candidates.

Question Type : MCQ
Question ID : 950017184
Status : Not Answered
Chosen Option : --
Marks : 0

Q.22 Let A and B be two mutually exclusive events such that $P(A^c) = 0.8$, $P(A \cup B) = 0.9$. Then $P(B)$ is:

- Ans ☒ A. 1.0
☒ B. 0.9
☒ C. 0.7
☒ D. 0.5

Question Type : MCQ
Question ID : 950017199
Status : Not Answered
Chosen Option : --
Marks : 0

Q.23 If $f(x) = \tan(2x)$ and $g(x) = |2x|$ then $g \circ f\left(\frac{\pi}{8}\right)$ is:

- Ans ☒ A. 4
☒ B. 5
☒ C. 7
☒ D. 2

Question Type : MCQ
Question ID : 950017164
Status : Not Answered
Chosen Option : --
Marks : 0

Q.24 The slope of a line $0.1x + 2y + 1 = 0$ is:

- Ans ☒ A. 5
☒ B. -0.05
☒ C. 0.05
☒ D. 0.5

Question Type : MCQ
Question ID : 950017186
Status : Not Answered
Chosen Option : --
Marks : 0

Q.25 Maximise $z = 2x + 5y$ subject to $x - y \leq 1$ and $2x + 3y \leq 5$, $x \geq 0$, $y \geq 0$. One of the corner points of feasible region is:

- Ans ☒ A. (1, 0)
☒ B. (2, 3)
☒ C. (0, 19)
☒ D. (-1, 4)

Question Type : MCQ
Question ID : 950017136
Status : Not Answered
Chosen Option : --
Marks : 0

Q.26 What is the value of p such that the vectors are perpendicular to $3i - 2j + 2pk$ and $6i + 10j - k$?

- Ans ☒ A. 2
☒ B. -2
☒ C. -1
☒ D. 1

Question Type : MCQ
Question ID : 950017155
Status : Not Answered
Chosen Option : --
Marks : 0

Q.27 The order and degree of the differential equation $\frac{dy}{dx} = \sqrt{20 + \frac{d^2y}{dx^2} + \frac{d^2y}{dx^2}}$ is:

- Ans ☒ A. Order - 4, degree - 2
☒ B. Order - 2, degree - 2
☒ C. Order - 1, degree - 3
☒ D. Order - 3, degree - 1

Question Type : MCQ
Question ID : 950017152
Status : Not Answered
Chosen Option : --
Marks : 0

Q.28 If $7x - 2$, $8x + 1$, x are in A.P., then the value of its sum is:

- Ans ☒ A. 7
☒ B. -8
☒ C. -9
☒ D. 8

Question Type : MCQ
Question ID : 950017183
Status : Not Answered
Chosen Option : --
Marks : 0

Q.29 What is the value of k such that the area of the triangle with vertices (2, 3), (-2, 5) and (0, k) is 2?

- Ans ☒ A. 2
☒ B. 1
☒ C. 4
☒ D. 3

Question Type : MCQ
Question ID : 950017140
Status : Not Answered
Chosen Option : --
Marks : 0

Q.30 The value of sum $287 + 574 + 861 + \dots + 2583$ is

Ans ☒ A. 12915

☒ B. 1602

☒ C. 15072

☒ D. 14072

Question Type : MCQ

Question ID : 950017185

Status : Not Answered

Chosen Option : --

Marks : 0

Q.31 The roots of the quadratic equation $x^2 - 8x + b = 0$ are complex then the value of b is:

Ans ☒ A. $b < 16$

☒ B. $b > 16$

☒ C. $b = 16$

☒ D. $b = 15$

Question Type : MCQ

Question ID : 950017172

Status : Not Answered

Chosen Option : --

Marks : 0

Q.32 The angle between the planes $2x - y + z = 9$ and $x - 2y + 3z = 2$ is:

Ans ☒ A. $\cos^{-1}\left(\frac{\sqrt{7}}{2\sqrt{3}}\right)$

☒ B. $\sin^{-1}\left(\frac{2\sqrt{7}}{\sqrt{3}}\right)$

☒ C. $\cos^{-1}\left(\frac{\sqrt{7}}{\sqrt{3}}\right)$

☒ D. $\cos^{-1}(9)$

Question Type : MCQ

Question ID : 950017192

Status : Not Answered

Chosen Option : --

Marks : 0

Q.33 The mean of the following frequency distribution x_i : 2, 10, 14, 18, 24, 28, 30; f_i : 3, 4, 7, 12, 8, 4, 3. is

Ans ☒ A. 17.39

☒ B. 8.39

☒ C. 1.39

☒ D. 18.39

Question Type : MCQ

Question ID : 950017196

Status : Not Answered

Chosen Option : --

Marks : 0

Q.34 The value of the integral $\int_0^6 \frac{\sqrt{6-x}}{\sqrt{x}+\sqrt{6-x}} dx$ is:

- Ans ☐ A. -3
☒ B. 3
☐ C. 2
☐ D. -1

Question Type : MCQ
Question ID : 950017147
Status : Not Answered
Chosen Option : --
Marks : 0

Q.35 The C.F. of $y'' - 3y' + 2 = 0$ is:

- Ans ☒ A. $y = A e^x + B e^{2x}$
☐ B. $y = A e^x$
☐ C. $y = A e^{-x} + B e^{-2x}$
☐ D. $y = e^{2x}$

Question Type : MCQ
Question ID : 950017150
Status : Not Answered
Chosen Option : --
Marks : 0

Q.36 If $\sin x = -\frac{5}{13}$, x lies in third quadrant then $\tan x$ is:

- Ans ☐ A. $\frac{7}{12}$
☐ B. $\frac{1}{12}$
☒ C. $\frac{5}{12}$
☐ D. $\frac{1}{3}$

Question Type : MCQ
Question ID : 950017168
Status : Not Answered
Chosen Option : --
Marks : 0

Q.37 The mean of $-14, 13, 5, 6, 8$ is:

Ans  A. 3.6

 B. 5.6

 C. 1.6

 D. 4.6

Question Type : MCQ

Question ID : 950017194

Status : Not Answered

Chosen Option : --

Marks : 0

Q.38 If $2x + 3, 6, 9$ are in G.P., then the value of x is:

Ans  A. 2

 B. $\frac{1}{2}$

 C. $-\frac{1}{2}$

 D. -2

Question Type : MCQ

Question ID : 950017182

Status : Not Answered

Chosen Option : --

Marks : 0

Q.39 The value of $\int \frac{1}{x^2+x} dx$ is:

Ans  A. $\ln\left(\frac{x}{2}\right) + C$

 B. $\left(\frac{x}{x+1}\right) + C$

 C. $\ln(x) + C$

 D. $\ln\left(\frac{x}{x+1}\right) + C$

Question Type : MCQ

Question ID : 950017146

Status : Not Answered

Chosen Option : --

Marks : 0

Q.40 The domain of $f(x) = \frac{35x}{\sqrt{(x^2+x^2)}}$ is:

- Ans ☒ A. $(-5, \infty)$
☒ B. $(-2, \infty)$
☒ C. $(1, \infty)$
☒ D. $(-1, \infty)$

Question Type : MCQ
Question ID : 950017163
Status : Not Answered
Chosen Option : --
Marks : 0

Q.41 Match the following:

Column I	Column II
E) Solution of the Differential Equation $dx + xdy = 0$	i) $x y' + y = 0$
F) Solution of $\frac{dy}{dx} = e^{x+2y}$	ii) $x' - mx = 0$
G) The Differential equation of $xy = c$	iii) $y + \log x = c$
H) The Differential equation of $x = e^{my}$	iv) $e^x + \frac{1}{2}e^{-2y} = c$

- Ans ☒ A. E-ii, F-i, G-iv, H-iii
☒ B. E-iii, F-iv, G-i, H-ii
☒ C. E-ii, F-iv, G-i, H-iii
☒ D. E-ii, F-iv, G-iii, H-i

Question Type : MCQ
Question ID : 950017144
Status : Not Answered
Chosen Option : --
Marks : 0

Q.42 The value of the expression $-i + (-i)^{16} + (-i)^{32} + (-i)^{64}$ is:

- Ans ☒ A. 3
☒ B. $3 + i$
☒ C. -3
☒ D. $3 - i$

Question Type : MCQ
Question ID : 950017171
Status : Not Answered
Chosen Option : --
Marks : 0

Q.43 Match the following:

A missile fixed ground level rises X meters vertically upwards in t seconds and $X = 50t - \left(\frac{13}{2}\right)t^2$

Column I	Column II
A) The initial velocity of the missile	i) Maximum height is equal to the time when the height of the missile is maximum
B) The time when the height of the missile is maximum	ii) 180.895
C) The maximum height is	iii) 3.9
D) Distance covered by the missile	iv) 50m/sec

- Ans ☒ A. I-iii, J-iv, K-i, L-ii
☒ B. I-ii, J-iv, K-iii, L-i
☒ C. I-ii, J-i, K-iv, L-iii
☒ D. I-iv, J-iii, K-i, L-ii

Question Type : MCQ
Question ID : 950017145
Status : Not Answered
Chosen Option : --
Marks : 0

Q.44 The distance between the planes $x - y + z + 8 = 0$ and $2x - 2y + 2z + 28 = 0$ is:

- Ans ☒ A. $\sqrt{3}$
☒ B. $2\sqrt{3}$
☒ C. $\sqrt{5}$
☒ D. $2\sqrt{5}$

Question Type : MCQ
Question ID : 950017193
Status : Not Answered
Chosen Option : --
Marks : 0

Q.45 The derivative of y with respect to x for parametric curves $x = 4\sin(2t)$, $y = 4\cos(2t)$ is:

- Ans ☒ A. $\tan(t)$
☒ B. $-\tan(2t)$
☒ C. $\sin(2t)$
☒ D. $\tan(2t)$

Question Type : MCQ
Question ID : 950017142
Status : Not Answered
Chosen Option : --
Marks : 0

Q.46 The diameter of the circle $2x^2 + 2y^2 - 16x + 8y - 9 = 0$ is:

- Ans
- ☐ A. $\sqrt{2}$
 - ☐ B. $5\sqrt{2}$
 - ☒ C. $7\sqrt{2}$
 - ☐ D. $7\sqrt{3}$

Question Type : MCQ
Question ID : 950017190
Status : Not Answered
Chosen Option : --
Marks : 0

Q.47 The minimum value of a natural number x that satisfies $9x - \frac{2}{3}x - 1 \geq 0$ is:

- Ans
- ☐ A. 0
 - ☒ B. 1
 - ☐ C. -1
 - ☐ D. 2

Question Type : MCQ
Question ID : 950017175
Status : Not Answered
Chosen Option : --
Marks : 0

Q.48 If A is 3×3 matrix and $|A| = 3$ then $|adj(A)|$ is:

- Ans
- ☐ A. 6
 - ☐ B. 7
 - ☐ C. 8
 - ☒ D. 9

Question Type : MCQ
Question ID : 950017137
Status : Not Answered
Chosen Option : --
Marks : 0

Q.49 The value of 9 radians in degrees is:

- Ans
- ☐ A. 513.6
 - ☒ B. 515.66
 - ☐ C. 510.2
 - ☐ D. 515.12

Question Type : MCQ
Question ID : 950017167
Status : Not Answered
Chosen Option : --
Marks : 0

Q.50 The P.I. of $y'' + 100y = \sin(10x)$ is:

- Ans
- ☒ A. $\frac{x}{20} \cos(10x)$
 - ☒ B. $\cos(10x)$
 - ☒ C. $\frac{x}{20} \sin(10x)$
 - ☒ D. $-\frac{x}{20} \cos(10x)$

Question Type : MCQ
Question ID : 950017151
Status : Not Answered
Chosen Option : --
Marks : 0

Q.51 Match the following:

Column I	Column II
A) If the two dimensional vectors are $X = \begin{bmatrix} 4 \\ 3 \end{bmatrix}$ And $Y = \begin{bmatrix} -3 \\ 4 \end{bmatrix}$ are orthogonal.	i) $r_1 = 2, r_2 = 3$
B) Express vector $V = \begin{bmatrix} 4 \\ 12 \\ 24 \end{bmatrix}$ as a linear combination of the vectors $X = \begin{bmatrix} 2 \\ 6 \\ 0 \end{bmatrix}$, $Y = \begin{bmatrix} 0 \\ 0 \\ 8 \end{bmatrix}$	ii) Inner product is given by $X \cdot Y = 0$
C) If the two dimensional vectors are Orthogonal	iii) X is a set of Linearly independent vectors
D) A Set of vectors $X = \{x_1, x_2, \dots, x_n\}$, if the equation $r_1x_1 + r_2x_2 + \dots + r_nx_n$ has only one trivial solution $r_1 = 0, r_2 = 0, \dots, r_n = 0$	iv) Angle is 90°

- Ans
- ☒ A. A-ii, B-i, C-iv, D-iii
 - ☒ B. A-i, B-ii, C-iii, D-iv
 - ☒ C. A-ii, B-iv, C-iii, D-i
 - ☒ D. A-iii, B-iv, C-i, D-ii

Question Type : MCQ
Question ID : 950017139
Status : Not Answered
Chosen Option : --
Marks : 0

Q.52 If $A = \{5, 7, 8, 9, 10\}$, $B = \{3, 4, 5, 6\}$, $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, then the number of elements in $(A \cap B)'$ is:

- Ans
- ☒ A. 8
 - ☒ B. 6
 - ☒ C. 7
 - ☒ D. 9

Question Type : MCQ
Question ID : 950017159
Status : Not Answered
Chosen Option : --
Marks : 0

Q.53 The value of x such that $2i - 9j + 3k$ is perpendicular to both, $3i + xk$ and $j + 3k$ is:

- Ans
- ☐ A. 3
 - ☐ B. 4
 - ☐ C. -3
 - ☒ D. -2

Question Type : MCQ
Question ID : 950017154
Status : Not Answered
Chosen Option : --
Marks : 0

Q.54 If a given line through the points $(1, -3, -1)$ and $(3, 1, k)$ is parallel to the line through the points $(1, -1, 2)$ and $(2, 1, 3)$ then the value of k is:

- Ans
- ☒ A. 1
 - ☐ B. 2
 - ☐ C. 4
 - ☐ D. 5

Question Type : MCQ
Question ID : 950017157
Status : Not Answered
Chosen Option : --
Marks : 0

Q.55 The area of the region bounded by the curves $y = 16x^3$, the lines $y = 0, x = 3, x = 6$ is:

- Ans
- ☐ A. 4850
 - ☐ B. 4840
 - ☒ C. 4860
 - ☐ D. 4830

Question Type : MCQ
Question ID : 950017149
Status : Not Answered
Chosen Option : --
Marks : 0

Q.56 If the intersection of the lines $x - y + 28 = 0$ and $2x + 3y - 8 = 0$ passes through the line $x - y + c = 0$ then the value of c is:

- Ans
- ☐ A. 25
 - ☐ B. 30
 - ☒ C. 28
 - ☐ D. 26

Question Type : MCQ
Question ID : 950017188
Status : Not Answered
Chosen Option : --
Marks : 0

Q.57 Two balls are drawn from a box containing 5 good and 10 not good balls. The probability that the second ball is good if the first one is not good:

- Ans
- ☒ A. $\frac{2}{3}$
 - ☒ B. $\frac{1}{20}$
 - ☒ C. $\frac{5}{21}$
 - ☒ D. $\frac{5}{3}$

Question Type : MCQ
Question ID : 950017200
Status : Not Answered
Chosen Option : --
Marks : 0

Q.58 Let $\circ$ be a binary operation defined on $\mathbb{R} - \{0\}$ as $a \circ b = \frac{ab}{3}$ for all a, b in $\mathbb{R} - \{0\}$. Then the identity element is:

- Ans
- ☒ A. 3
 - ☒ B. 1
 - ☒ C. 2
 - ☒ D. 4

Question Type : MCQ
Question ID : 950017135
Status : Not Answered
Chosen Option : --
Marks : 0

Q.59 If $A = \{x: x \in \mathbb{N}, 1 \leq x < 9\}$ and $B = \{2, 3, 4, 5\}$ then the number of elements in $A \times B$ is:

- Ans
- ☒ A. 30
 - ☒ B. 29
 - ☒ C. 32
 - ☒ D. 31

Question Type : MCQ
Question ID : 950017162
Status : Not Answered
Chosen Option : --
Marks : 0

Q.60 The value of $P(5,1) + P(5,2) + P(5,3) + P(5,4) + P(5,5)$ is:

- Ans
- ☒ A. 323
 - ☒ B. 324
 - ☒ C. 322
 - ☒ D. 325

Question Type : MCQ
Question ID : 950017179
Status : Not Answered
Chosen Option : --
Marks : 0

Q.61 The relation defined by $R = \{(2,3),(2,4),(3,2),(3,4)\}$ on a set $A = \{1,2,3,4\}$ is:

- Ans
- A. transitive
 - B. reflexive
 - C. anti-symmetric
 - D. symmetric

Note: For this question, discrepancy is found in question/answer. Full Marks is being awarded to all candidates.

Question Type : MCQ
Question ID : 950017133
Status : Not Answered
Chosen Option : --
Marks : 0

Q.62 If $P(n): (-2)^n > 2, n \in N$ then $P(n)$ is true for:

- Ans
- ☒ A. every n
 - ☒ B. even multiple of n
 - ☒ C. odd multiples of n
 - ☒ D. no value of n

Question Type : MCQ
Question ID : 950017174
Status : Not Answered
Chosen Option : --
Marks : 0

Q.63 The direction ratios of a line are 1, -3, 5. Then the directions cosines of a line making obtuse angle with y axis are:

- Ans
- ☒ A. $-\frac{1}{\sqrt{35}}, \frac{3}{\sqrt{35}}, -\frac{5}{\sqrt{35}}$
 - ☒ B. $\frac{5}{\sqrt{35}}, \frac{7}{\sqrt{35}}, \frac{5}{\sqrt{35}}$
 - ☒ C. $-\frac{5}{\sqrt{35}}, \frac{1}{\sqrt{35}}, -\frac{5}{\sqrt{35}}$
 - ☒ D. $\frac{2}{\sqrt{35}}, \frac{3}{\sqrt{35}}, \frac{3}{\sqrt{35}}$

Question Type : MCQ
Question ID : 950017156
Status : Not Answered
Chosen Option : --
Marks : 0

Q.64 Let the universal set U be the set of all natural numbers less than or equal to 13 and set A be the set of even multiples of 2 less than 13. Then the complement of A is:

- Ans ☒ A. {11,13}
- ☒ B. {1,3}
- ☒ C. {1,3,5,7,9,11,13}
- ☒ D. {2,3,5,7,9,11,13}

Question Type : MCQ
Question ID : 950017158
Status : Not Answered
Chosen Option : --
Marks : 0

Q.65 The angle between the lines $x - 2y + 7 = 0$ and $2x + y + 6 = 0$ is:

- Ans ☒ A. π
- ☒ B. 2π
- ☒ C. 0
- ☒ D. $\frac{\pi}{2}$

Question Type : MCQ
Question ID : 950017187
Status : Not Answered
Chosen Option : --
Marks : 0

Q.66 If $y = \sqrt{x + 14}$ then $y'(50)$ is:

- Ans ☒ A. $\frac{1}{14}$
- ☒ B. $\frac{1}{13}$
- ☒ C. $\frac{1}{16}$
- ☒ D. $\frac{1}{15}$

Question Type : MCQ
Question ID : 950017143
Status : Not Answered
Chosen Option : --
Marks : 0

Q.67 The region of solution for inequality $7x + 9y \geq 8$ where $x, y \in R$ does not lies in

- Ans ☒ A. Quadrant IV
- ☒ B. Quadrant III
- ☒ C. Quadrant I
- ☒ D. Quadrant II

Question Type : MCQ
Question ID : 950017176
Status : Not Answered
Chosen Option : --
Marks : 0

Q.68 The value of n satisfying $(n + 1)! = 5 \times n!$ is

- Ans ☒ A. 4
☒ B. 1
☒ C. 5
☒ D. 6

Question Type : MCQ
Question ID : 950017178
Status : Not Answered
Chosen Option : --
Marks : 0

Section : Biology (Optional)

Q.1 _____ requires the enzyme pyruvic acid decarboxylase.

- Ans ☒ A. Glycolysis
☒ B. TCA cycle
☒ C. Fatty acid synthesis
☒ D. Fermentation

Question Type : MCQ
Question ID : 950017223
Status : Answered
Chosen Option : B
Marks : 0

Q.2 Which subfield of biotechnology is associated with vaccine manufacturing?

- Ans ☒ A. Genetic engineering
☒ B. Industrial biotechnology
☒ C. Chemical engineering
☒ D. Bioprocess engineering

Question Type : MCQ
Question ID : 950017259
Status : Answered
Chosen Option : D
Marks : 1

Q.3 Which of the following statements about the 'Law of Dominance' is FALSE?

- Ans ☒ A. Factors can be found in pairs.
☒ B. Characters are managed by discrete units known as factors.
☒ C. In a pair of distinct factors, one factor dominates and the other is recessive.
☒ D. A homozygous parent generates identical gametes.

Question Type : MCQ
Question ID : 950017250
Status : Answered
Chosen Option : B
Marks : 0

Q.4 Which of the following does NOT qualify as a fermented food?

- Ans
- ☐ A. Soya sauce
 - ☐ B. Idli
 - ☐ C. Roquefort cheese
 - ☒ D. Ice-cream

Question Type : MCQ
Question ID : 950017256
Status : Answered
Chosen Option : D
Marks : 1

Q.5 Which of the following statement about pancreas is INCORRECT?

- Ans
- ☐ A. Pancreas is a mixed gland.
 - ☐ B. Glycogenesis is boosted by insulin.
 - ☐ C. Glucagon promotes glycogenolysis.
 - ☒ D. Insulin is secreted by the alpha cells, while glucagon is secreted by the beta cells of pancreas.

Question Type : MCQ
Question ID : 950017237
Status : Answered
Chosen Option : D
Marks : 1

Q.6 Which continent has the largest biodiversity region?

- Ans
- ☒ A. South America
 - ☐ B. North America
 - ☐ C. Asia
 - ☐ D. Africa

Question Type : MCQ
Question ID : 950017264
Status : Answered
Chosen Option : D
Marks : 0

Q.7 Which of the following species is NOT included in the recent IUCN Red extinction list?

- Ans
- ☐ A. Thylacine
 - ☐ B. Quagga
 - ☒ C. Sea horse
 - ☐ D. Steller's Sea Cow

Question Type : MCQ
Question ID : 950017267
Status : Answered
Chosen Option : A
Marks : 0

Q.8 Which of the following statements about fungi is FALSE?

- Ans ☒ A. Fragmentation is one method through which fungus reproduces vegetatively.
- ☒ B. Fungi are widespread and can be found on plants, animals, and even in the air, water and soil.
- ☒ C. Yeasts have a filamentous structure.
- ☒ D. The majority of fungi are saprophytes.

Question Type : MCQ
Question ID : 950017208
Status : Answered
Chosen Option : D
Marks : 0

Q.9 Birds expel nitrogenous waste in the form of _____

- Ans ☒ A. creatin
- ☒ B. urea
- ☒ C. uric acid
- ☒ D. ammonia

Question Type : MCQ
Question ID : 950017229
Status : Answered
Chosen Option : C
Marks : 1

Q.10 Where can perimetrium be found?

- Ans ☒ A. Ovary
- ☒ B. Fallopian tube
- ☒ C. Uterus
- ☒ D. Vagina

Question Type : MCQ
Question ID : 950017239
Status : Answered
Chosen Option : B
Marks : 0

Q.11 Identify the correct statement.

- Ans ☒ A. The circulatory system of annelids is open.
- ☒ B. The human heart is found in the abdominal cavity.
- ☒ C. Crocodiles have four-chambered hearts.
- ☒ D. Fishes have double circulation.

Question Type : MCQ
Question ID : 950017234
Status : Answered
Chosen Option : C
Marks : 1

Q.12 When malted cereals are fermented with brewer's yeast, ____ is produced.

- Ans ☒ A. ethanol
☒ B. bread
☒ C. curd
☒ D. cheese

Question Type : MCQ
Question ID : 950017257
Status : Answered
Chosen Option : A
Marks : 0

Q.13 How many protein molecules are there in the body represented by the sphere in the given diagram?



- Ans ☒ A. 12
☒ B. 4
☒ C. 8
☒ D. 16

Question Type : MCQ
Question ID : 950017247
Status : Answered
Chosen Option : C
Marks : 1

Q.14 Identify the INCORRECT statement.

- Ans ☒ A. An excellent sedative and painkiller is morphine.
☒ B. Cannabinoids are recognised for their impact on the digestive system.
☒ C. Cocaine disrupts the transport of the neurotransmitter dopamine.
☒ D. Heroin is a depressant that slows bodily functions.

Question Type : MCQ
Question ID : 950017258
Status : Answered
Chosen Option : B
Marks : 1

Q.15 Semen contains ____.

- Ans ☒ A. sperms, spermatids and seminal plasma
☒ B. seminal plasma and spermatids
☒ C. sperms and seminal plasma
☒ D. seminal plasma, sperms and androgens

Question Type : MCQ
Question ID : 950017241
Status : Answered
Chosen Option : C
Marks : 1

Q.16 Calvin cycle is a part of ____.

Ans

✖

A. respiration

✖

B. urea synthesis

✖

C. fermentation

✔

D. photosynthesis

Question Type : MCQ

Question ID : 950017218

Status : Answered

Chosen Option : D

Marks : 1

Q.17 What provides bacteria characteristics such as antibiotic resistance?

Ans

✖

A. The ability of rapid multiplication

✖

B. Mesosome

✔

C. Plasmid DNA

✖

D. Non-membrane bound genetic material

Question Type : MCQ

Question ID : 950017214

Status : Answered

Chosen Option : A

Marks : 0

Q.18 The animals ____ are capable of transforming healthy cells into malignant ones.

Ans

✖

A. Agrobacterium tumifaciens

✔

B. retroviruses

✖

C. bacteriophage

✖

D. E.coli

Question Type : MCQ

Question ID : 950017262

Status : Answered

Chosen Option : A

Marks : 0

Q.19 Which of the following statements related to immunity is correct?

Ans

✔

A. H₂L₃ represents an antibody.

✖

B. Antibodies are produced by B-lymphocytes.

✖

C. Antibodies are present in blood.

✖

D. Saliva is a physiological barrier.

Question Type : MCQ

Question ID : 950017255

Status : Answered

Chosen Option : B

Marks : 0

Q.20 Which of the following species does NOT exhibit XO sex determination?

- Ans  A. Cockroaches
-  B. Drosophila
-  C. Cricket
-  D. Grasshopper

Question Type : MCQ
Question ID : 950017249
Status : Answered
Chosen Option : D
Marks : 0

Q.21 Match the infections in column A with their mode of transmission in column B.

Infections	Mode of transmission
a. Ringworms	i. droplets from an infected individual.
b. Amoebiasis	ii. bite of a female mosquito vector
c. Common cold	iii. using the clothes of an infected individual
d. Malaria	iv. food contaminated by faecal matter

- Ans  A. a-iii, b-iv, c-i, d-ii
-  B. a- ii, b-iv, c-i, d-iii
-  C. a-iii, b-ii, c-iv, d-i
-  D. a-iv, b-iii, c-ii, d-i

Question Type : MCQ
Question ID : 950017243
Status : Answered
Chosen Option : A
Marks : 1

Q.22 The spleen is the graveyard of _____

- Ans  A. platelets
-  B. RBCs
-  C. WBCs
-  D. plasma protein

Question Type : MCQ
Question ID : 950017226
Status : Answered
Chosen Option : B
Marks : 1

Q.23 Identify the amino acid Alanine based on the given structure.

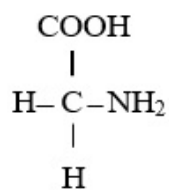


Fig. 1

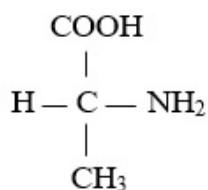


Fig. 2

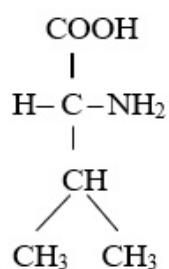


Fig. 3

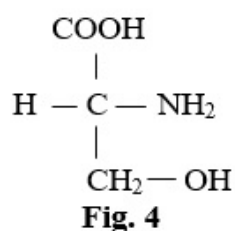


Fig. 4

- Ans
- ☐ A. Fig. 1
 - ☐ B. Fig 4
 - ☐ C. Fig. 3
 - ☒ D. Fig. 2

Question Type : MCQ
Question ID : 950017215
Status : Answered
Chosen Option : B
Marks : 0

Q.24 Which of the following statements about photorespiration is INCORRECT?

- Ans
- ☐ A. One molecule each of phosphoglycerate and phosphoglycolate are formed.
 - ☒ B. There is synthesis of sugars and NADPH.
 - ☐ C. The process of photorespiration does not take place in C4 plants.
 - ☐ D. CO₂ is released and ATP is used up in the process.

Question Type : MCQ
Question ID : 950017224
Status : Answered
Chosen Option : C
Marks : 0

Q.25 At the time of childbirth, _____ promotes a strong contraction of the uterus in females.

- Ans
- ☐ A. LH
 - ☒ B. oxytocin
 - ☐ C. prolactin
 - ☐ D. FSH

Question Type : MCQ
Question ID : 950017228
Status : Answered
Chosen Option : B
Marks : 1

Q.26 The _____ is a tiny opening in the DNA helix that allows two long strands of DNA molecules to replicate.

- Ans ☒ A. replication fork
- ☒ B. origin of replication
- ☒ C. Transcription promoter
- ☒ D. semiconservative DNA replication template strand

Question Type : MCQ
Question ID : 950017245
Status : Answered
Chosen Option : D
Marks : 0

Q.27 Which of the following statements about chloroplast is correct?

- Ans ☒ A. The chloroplasts are aligned along the mesophyll cell walls.
- ☒ B. The chloroplast does not have a well-defined division of labour.
- ☒ C. Enzymatic reactions in the stroma produce phospholipids.
- ☒ D. The chloroplast has a membranous system made up of only grana and stroma lamellae.

Question Type : MCQ
Question ID : 950017219
Status : Answered
Chosen Option : D
Marks : 0

Q.28 Identify the correct statement about Bryophytes.

- Ans ☒ A. Dryopteris is an example of bryophyte.
- ☒ B. There are four main categories for bryophytes.
- ☒ C. Bryophytes reduce soil erosion.
- ☒ D. Bryophytes are the first terrestrial species that have vascular tissues.

Question Type : MCQ
Question ID : 950017203
Status : Answered
Chosen Option : D
Marks : 0

Q.29 Which of the following is NOT a symptom of pneumonia?

- Ans ☒ A. Cough
- ☒ B. Loss of appetite
- ☒ C. Headache
- ☒ D. Fever

Question Type : MCQ
Question ID : 950017254
Status : Answered
Chosen Option : B
Marks : 1

Q.30 Match the columns.

Diseases	Hormones
a. Addison’s disease	i. Excess growth hormone
b. Acromegaly	ii. Hyperthyroidism
c. Grave’s disease	iii. Lack of ADH
d. Diabetes Insipidus	iv. Lack of adrenal hormone

- Ans  A. a-i, b-ii, c-iii, d-iv
 B. a-iv, b-iii, c-ii, d-i
 C. a-ii, b-iii, c-i, d-iv
 D. a-iv, b-i, c-ii, d-iii

Question Type : MCQ
Question ID : 950017233
Status : Answered
Chosen Option : D
Marks : 1

Q.31 Which of the following is NOT a peptide hormone?

- Ans  A. Erythropoietin
 B. Gastrin
 C. Oestrogen
 D. Insulin

Question Type : MCQ
Question ID : 950017236
Status : Answered
Chosen Option : C
Marks : 1

Q.32 Match the columns.

Column A	Column B
a. Fibrinogen	i. Acute chest pain
b. Basophil	ii. Membranous sac
c. Pericardium	iii. Blood coagulation
d. Angina	iv. Secrete serotonin

- Ans  A. a-iii, b-ii, c-iv, d-i
 B. a-iii, b-iv, c-ii, d-i
 C. a-iv, b-iii, c-ii, d-i
 D. a-iv, b-i, c-ii, d-iii

Question Type : MCQ
Question ID : 950017238
Status : Answered
Chosen Option : B
Marks : 1

Q.33 Which compound initiates glycolysis in the plant cell?

- Ans  A. Fructose
-  B. Glucose
-  C. ribose
-  D. Glucose-1-phosphate

Question Type : MCQ
Question ID : 950017220
Status : Answered
Chosen Option : D
Marks : 0

Q.34 Match the column of population interactions of two different species.

Column A	Column B
i. Species of both kinds benefit.	a. Amensalism
ii. One species is afflicted while the other is unharmed.	b. Competition
iii. Both species are at a loss.	c. Parasitism
iv. Only one species benefits from the relationship, while the other species suffers.	d. Mutualism

- Ans  A. i-c, ii-a, iii-b, iv-d
-  B. i-d, ii-a, iii-b, iv-c
-  C. i-c, ii-b, iii-a, iv-d
-  D. i-d, ii-c, iii-a, iv-b

Question Type : MCQ
Question ID : 950017268
Status : Answered
Chosen Option : B
Marks : 1

Q.35 The body plans of ____ are radically symmetrical.

- Ans  A. annelids
-  B. sponge
-  C. arthropods
-  D. echinoderms

Question Type : MCQ
Question ID : 950017204
Status : Answered
Chosen Option : C
Marks : 0

Q.36 Identify the option that arranges the sequence of zygote development in plants.

- Ans ☒ A. Heart-shaped, globular, proembryo and mature embryo
- ☒ B. Proembryo, globular, heart-shapedand mature embryo
- ☒ C. Heart-shaped, proembryo, globular and mature embryo
- ☒ D. Proembryo, heart-shaped, globular and mature embryo

Question Type : MCQ
Question ID : 950017242
Status : Answered
Chosen Option : B
Marks : 1

Q.37 Identify the scientist who was NOT involved in any experiments relating to plant photosynthesis.

- Ans ☒ A. Jan Ingenhousz
- ☒ B. Julius von Sachs
- ☒ C. TW Engelmann
- ☒ D. Georg Ohm

Question Type : MCQ
Question ID : 950017217
Status : Answered
Chosen Option : D
Marks : 1

Q.38 Which of the following organelles lacks a membrane?

- Ans ☒ A. Centrosome
- ☒ B. Golgi complex
- ☒ C. mitochondria
- ☒ D. Nucleolus

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of these options are chosen - 1,4

Question Type : MCQ
Question ID : 950017209
Status : Answered
Chosen Option : A
Marks : 1

Q.39 The process of introducing a fragment of DNA into a bacterial host is known as ____.

- Ans ☒ A. transportation
- ☒ B. transformation
- ☒ C. transcription
- ☒ D. translation

Question Type : MCQ
Question ID : 950017261
Status : Answered
Chosen Option : A
Marks : 0

Q.40 Some plants have a quantitative or qualitative relationship between exposure to low temperatures and flowering. It is called ____.

- Ans ☒ A. vernalisation
- ☒ B. seed dormancy
- ☒ C. day-neutral plants
- ☒ D. long day plants

Question Type : MCQ
Question ID : 950017222
Status : Answered
Chosen Option : A
Marks : 1

Q.41 Identify the option that arrange the given steps of respiration in correct order.

- i. O₂ and CO₂ diffusion over the alveolar membrane
- ii. O₂ and CO₂ diffusion between blood and tissues
- iii. Transportation of gases through blood
- iv. Pulmonary ventilation draws in atmospheric air and expels CO₂-rich alveolar air

- Ans ☒ A. i, iii, iv, ii
- ☒ B. iv, iii, ii, i
- ☒ C. iii, i, ii, iv
- ☒ D. iv, i, iii, ii

Question Type : MCQ
Question ID : 950017232
Status : Answered
Chosen Option : B
Marks : 0

Q.42 What is snow-blindness?

- Ans ☒ A. Cataract
- ☒ B. Blindness from snow's reflection
- ☒ C. Inflammation of cornea
- ☒ D. Freezing of eyeballs due to cold

Question Type : MCQ
Question ID : 950017266
Status : Answered
Chosen Option : D
Marks : 0

Q.43 The hormone melatonin aids in the maintenance of ____.

- Ans ☒ A. a regular sleep-wake cycle
- ☒ B. blood pH
- ☒ C. water and electrolyte balance
- ☒ D. calcium balance

Question Type : MCQ
Question ID : 950017230
Status : Answered
Chosen Option : B
Marks : 0

Q.44 Which of the following statements about gibberellins is INCORRECT?

- Ans ☒ A. GA3 is used in the brewing industry to accelerate the malting process.
- ☒ B. They are capable of increasing the length of the axis.
- ☒ C. Fungi and plants produce more than 100 gibberellins.
- ☒ D. They hasten the ageing process.

Question Type : MCQ
Question ID : 950017221
Status : Answered
Chosen Option : B
Marks : 0

Q.45 Which of the following statements about India's Medical Termination of Pregnancy (Amendment) Act, 2017 is INCORRECT?

- Ans ☒ A. After 12 weeks but before 30 weeks, the pregnancy can be terminated if it poses a danger to the life of the pregnant mother.
- ☒ B. The primary goal was to lower the number of illegal abortions.
- ☒ C. This Act allows abortions within the first 12 weeks of pregnancy for specific reasons.
- ☒ D. Voluntary termination of pregnancy refers to the termination of a pregnancy prior to full term.

Question Type : MCQ
Question ID : 950017244
Status : Answered
Chosen Option : A
Marks : 1

Q.46 Identify the INCORRECT statement about enzymes.

- Ans ☒ A. Thermal instability is an important characteristic of enzymes derived from thermophilic organisms.
- ☒ B. Catalysed reactions proceed at significantly faster rates than uncatalysed ones.
- ☒ C. The substrate fits into an enzyme's active site.
- ☒ D. Some nucleic acids have enzyme-like properties.

Question Type : MCQ
Question ID : 950017216
Status : Answered
Chosen Option : A
Marks : 1

Q.47 Which organism has a pellicle-based flexible body?

- Ans ☒ A. Euglenoids
- ☒ B. Slime Moulds
- ☒ C. Protozoans
- ☒ D. Dinoflagellates

Question Type : MCQ
Question ID : 950017202
Status : Answered
Chosen Option : A
Marks : 1

Q.48 'Dura mater' can be found in the _____.

- Ans
- ☒ A. kidney
 - ☒ B. brain
 - ☒ C. liver
 - ☒ D. thyroid gland

Question Type : MCQ
Question ID : 950017227
Status : Answered
Chosen Option : D
Marks : 0

Q.49 Which of the following statements about neuron is INCORRECT?

- Ans
- ☒ A. The retina of the eye contains multipolar neurons.
 - ☒ B. Schwann cells surround the myelinated nerve fibres.
 - ☒ C. Neurotransmitters are chemicals found in synaptic vesicles.
 - ☒ D. Cell body, dendrites and axon make up a neuron.

Question Type : MCQ
Question ID : 950017231
Status : Answered
Chosen Option : D
Marks : 0

Q.50 Which of the following statements about the isolation of genetic material is correct?

- Ans
- ☒ A. Protease can be used to remove the RNA.
 - ☒ B. DNA is free within cell membranes and easy to extract from other macromolecules.
 - ☒ C. Cellulase is an enzyme produced by fungi.
 - ☒ D. Genes are found on long DNA molecules that are intertwined with proteins like histones.

Question Type : MCQ
Question ID : 950017263
Status : Answered
Chosen Option : D
Marks : 1

Q.51 Which animal listed below is NOT a coelomate?

- Ans
- ☒ A. Aschelminthes
 - ☒ B. Molluscs
 - ☒ C. Echinoderms
 - ☒ D. Arthropods

Question Type : MCQ
Question ID : 950017206
Status : Answered
Chosen Option : A
Marks : 1

Q.52 Cohen and Boyer isolated the gene for antibiotic resistance in ____.

Ans ☒ A. 1972

☐ B. 1969

☐ C. 1966

☐ D. 1936

Question Type : MCQ

Question ID : 950017260

Status : Answered

Chosen Option : C

Marks : 0

Q.53 Identify the INCORRECT statement regarding pollen grains.

Ans ☐ A. The tough outer layer known as the exine.

☐ B. Pollen allergy is caused by carrot grass.

☒ C. Pollen grains are effectively fossilised due to the presence of pectin.

☐ D. The mature pollen grain's vegetative cell has a large food reserve.

Question Type : MCQ

Question ID : 950017240

Status : Answered

Chosen Option : D

Marks : 0

Q.54 Identify the INCORRECT statement about transcription.

Ans ☐ A. 3' → 5' serves as the template strand. .

☒ B.

Transcription is the process of converting genetic information from one strand of RNA into DNA.

☐ C.

Only one of the DNA strands is copied into RNA during transcription.

☐ D. DNA's transcription unit includes the structural gene.

Question Type : MCQ

Question ID : 950017246

Status : Answered

Chosen Option : B

Marks : 1

Q.55 Which of the following pairs of nitrogenous bases listed in the options is found in both, DNA and RNA?

Ans ☐ A. Thymine and Adenine

☐ B. Thymine and Guanine

☐ C. Uracil and Guanine

☒ D. Adenine and Guanine

Question Type : MCQ

Question ID : 950017252

Status : Answered

Chosen Option : D

Marks : 1

Q.56 From the organisms given below, identify the top predator.

- Ans ☒ A. Eagle
- ☒ B. Frog
- ☒ C. Mouse
- ☒ D. Python

Question Type : MCQ
Question ID : 950017265
Status : Answered
Chosen Option : A
Marks : 1

Q.57 The pleura are the membrane covering the _____.

- Ans ☒ A. lungs
- ☒ B. kidneys
- ☒ C. brain
- ☒ D. heart

Question Type : MCQ
Question ID : 950017225
Status : Answered
Chosen Option : A
Marks : 1

Q.58 A nucleotide is:

- Ans ☒ A. a nitrogen base + a sugar
- ☒ B. a nitrogen base + a glucose + a phosphate group
- ☒ C. cytosine + a sugar
- ☒ D. a nitrogen base + a sugar + a phosphate group

Question Type : MCQ
Question ID : 950017213
Status : Answered
Chosen Option : D
Marks : 1

Q.59 Identify the INCORRECT statement about diatoms.

- Ans ☒ A. Diatoms are the most important 'producers' in the oceans.
- ☒ B. Diatoms are members of the Dinoflagellates group.
- ☒ C. Diatom cell walls are indestructible.
- ☒ D. They can be found in both, freshwater and marine habitats.

Question Type : MCQ
Question ID : 950017205
Status : Answered
Chosen Option : C
Marks : 0

Q.60 Which syndrome is brought on by having an additional copy of the chromosome 21 (trisomy of 21)?

- Ans ☒ A. Down's syndrome
- ☒ B. Turner's syndrome
- ☒ C. Klinefelter's syndrome
- ☒ D. Triple X syndrome

Question Type : MCQ
Question ID : 950017248
Status : Answered
Chosen Option : A
Marks : 1

Q.61 Which of the following Mendelian diseases is NOT associated with autosomes?

- Ans ☒ A. Haemophilia
- ☒ B. Thalassemia
- ☒ C. Phenylketonuria
- ☒ D. Sickle-cell anaemia

Question Type : MCQ
Question ID : 950017251
Status : Answered
Chosen Option : A
Marks : 1

Q.62 The loop of Henle goes deep into the medulla in some nephrons. They are called _____.

- Ans ☒ A. vasa recta
- ☒ B. cortical nephrons
- ☒ C. glomerular nephrons
- ☒ D. juxta medullary nephrons

Question Type : MCQ
Question ID : 950017235
Status : Answered
Chosen Option : D
Marks : 1

Q.63 In which of the following parts can we find filament, hook and basal body?

- Ans ☒ A. Cilia
- ☒ B. Pseudopodia
- ☒ C. Fimbriae
- ☒ D. Flagella

Question Type : MCQ
Question ID : 950017210
Status : Answered
Chosen Option : B
Marks : 0

Q.64 Which of the following is NOT a symptom of typhoid?

- Ans ☒ A. Loss of appetite
☒ B. Constipation
☒ C. Chest pain
☒ D. Stomach pain

Question Type : MCQ
Question ID : 950017253
Status : Answered
Chosen Option : D
Marks : 0

Q.65 What is trihydroxy propane?

- Ans ☒ A. Propionic acid
☒ B. Alcohol
☒ C. Cholesterol
☒ D. Glycerol

Question Type : MCQ
Question ID : 950017212
Status : Answered
Chosen Option : D
Marks : 1

Q.66 Which of the following statements about cell theory is FALSE?

- Ans ☒ A. Schwann discovered that cells have a thin outer layer called the 'plasma membrane.'
☒ B. Pre-existing cells give rise to all cells.
☒ C. All living organisms consist of cells and cell products.
☒ D. The cell theory was given a final shape by Schleiden and Schwann.

Question Type : MCQ
Question ID : 950017211
Status : Answered
Chosen Option : D
Marks : 1

Q.67 _____ is NOT an example of an alga having a filamentous shape.

- Ans ☒ A. Volvox
☒ B. Spirogyra
☒ C. Ulothrix
☒ D. Oscillatoria

Question Type : MCQ
Question ID : 950017201
Status : Answered
Chosen Option : C
Marks : 0

Q.68 _____ is/are home to a variety of halophiles.

- Ans  A. Hot springs
-  B. The Arctic region
-  C. The sewage
-  D. The Dead Sea

Question Type : MCQ
Question ID : 950017207
Status : Answered
Chosen Option : A
Marks : 0