

AICEE 2022 SAMPLE SET 1 (PHYSICS)

Q1.	<p>If a positively charged sphere is taken close to another uncharged sphere then which of the following statements is true?</p> <ul style="list-style-type: none"><input type="checkbox"/> Induction and attraction occur simultaneously<input checked="" type="checkbox"/> Induction occurs before the attraction<input type="checkbox"/> Attraction or repulsion may occur<input type="checkbox"/> Attraction occurs before induction
Q2.	<p>What will be permittivity of a medium which has dielectric constant 5.4?</p> <ul style="list-style-type: none"><input checked="" type="checkbox"/> $4.78 \times 10^{-11} \text{ C}^2\text{N}^{-1}\text{m}^{-2}$<input type="checkbox"/> $4.5 \times 10^{-10} \text{ C}^2\text{N}^{-1}\text{m}^{-2}$<input type="checkbox"/> $3.2 \times 10^{-11} \text{ C}^2\text{N}^{-1}\text{m}^{-2}$<input type="checkbox"/> $8.85 \times 10^{-10} \text{ C}^2\text{N}^{-1}\text{m}^{-2}$
Q3.	<p>Which among the following cannot be the charge of a charged body?</p> <ul style="list-style-type: none"><input type="checkbox"/> 3.2×10^{-10} Coulomb<input type="checkbox"/> 4.8×10^{-14} Coulomb<input checked="" type="checkbox"/> 5×10^{-14} Coulomb<input type="checkbox"/> 6.4×10^{-15} Coulomb
Q4.	<p>Two point charges $+4q$ and $+q$ are kept at a distance of 30 cm from each other. At which point between them, the field intensity will be equal to zero?</p> <ul style="list-style-type: none"><input type="checkbox"/> 15cm away from the $+4q$ charge<input type="checkbox"/> 7.5cm away from the $+q$ charge<input type="checkbox"/> 5cm away from the $+q$ charge<input checked="" type="checkbox"/> 20cm away from the $+4q$ charge
Q5.	<p>What is the dimension of volume charge density?</p> <ul style="list-style-type: none"><input checked="" type="checkbox"/> $[\text{M}^0 \text{L}^{-3} \text{A T}]$<input type="checkbox"/> $[\text{M} \text{L}^{-3} \text{A T}]$

	<p>[MLAT⁻²]</p> <p>[M L⁻² A T]</p>
Q6.	<p>An electron of mass m is kept in a vertical electric field of magnitude E. What must be the value of E so that the electron doesn't fall due to gravity?</p> <p><input type="checkbox"/> $1/(m \cdot g \cdot e)$</p> <p><input type="checkbox"/> $m \cdot g \cdot e$</p> <p><input type="checkbox"/> $e/(m \cdot g)$</p> <p><input checked="" type="checkbox"/> $(m \cdot g)/e$</p>
Q7.	<p>. In which type of molecule positive and negative charges coincide with each other?</p> <p><input checked="" type="checkbox"/> Non-polar</p> <p><input type="checkbox"/> Bipolar</p> <p><input type="checkbox"/> Polar</p> <p><input type="checkbox"/> Unipolar</p>
Q8.	<p>What is the amount of work done to bring a charge of $4 \cdot 10^{-3} \text{C}$ charge from infinity to a point whose electric potential is $2 \cdot 10^2 \text{V}$?</p> <p><input type="checkbox"/> 1.6J</p> <p><input checked="" type="checkbox"/> 0.8J</p> <p><input type="checkbox"/> -0.4J</p> <p><input type="checkbox"/> -0.8J</p>
Q9.	<p>Identify the dimension of electrostatic potential energy from the following.</p> <p><input type="checkbox"/> $\text{ML}^2\text{T}^{-3}\text{A}^{-2}$</p> <p><input type="checkbox"/> $\text{ML}^3\text{T}^{-2}\text{A}^{-1}$</p> <p><input type="checkbox"/> $\text{M}^{-1}\text{L}^2\text{T}^{-3}\text{A}$</p> <p><input checked="" type="checkbox"/> $\text{ML}^2\text{T}^{-3}\text{A}^{-1}$</p>

Q10.	<p>What happens to the capacitance when a dielectric material is inserted between the plates of a parallel plate capacitor?</p> <p>Capacitance increases Capacitance decreases Capacitance remains same Depends upon the material of the dielectric</p>
Q11.	<p>What is the use of a Van de Graff generator?</p> <p><input type="checkbox"/> Van de Graff generator is used to create a large amount of current <input checked="" type="checkbox"/> Van de Graff generator is used to create a large amount of static electricity <input type="checkbox"/> Van de Graff generator is used to create a small amount of voltage <input type="checkbox"/> Van de Graff generator is used to create a small amount of resistance</p>
Q12.	<p>Which of these is a correct definition of conventional current?</p> <p><input type="checkbox"/> Current that flows from lower potential to higher potential <input checked="" type="checkbox"/> Current that flows from higher potential to lower potential <input type="checkbox"/> The current which remains static <input type="checkbox"/> Current constituted by the flow of ions</p>
Q13.	<p>How does the capacitance change with the effect of the dielectric when the battery is kept disconnected from the capacitor?</p> <p><input checked="" type="checkbox"/> Increases <input type="checkbox"/> Remains constant <input type="checkbox"/> Decreases <input type="checkbox"/> Zero</p>
Q14.	<p>What is the reciprocal of resistance of a material called? Give its unit.</p> <p><input checked="" type="checkbox"/> Conductance, ohm⁻¹ <input type="checkbox"/> Conductance, ohm⁻¹ m⁻¹ <input type="checkbox"/> Conductivity, ohm⁻¹ m⁻¹ <input type="checkbox"/> Conductivity, ohm⁻¹</p>

Q15.	<p>A transformer is used to light 100 W 25 volt lamp from 250 Volt ac mains. The current in the main cable is 0.5 A. Calculate the efficiency of the transformer.</p> <p>60% 90% 50% 80%</p>
Q16.	<p>Give the SI unit of capacitive reactance.</p> <p><input type="checkbox"/> Am <input type="checkbox"/> A <input checked="" type="checkbox"/> Ωm <input type="checkbox"/> Ω</p>
Q17.	<p>Calculate the rms value of current in the circuit wherein an 80 μF capacitor is connected to a 100 V, 80 Hz ac supply.</p> <p><input type="checkbox"/> 7 A <input checked="" type="checkbox"/> 4 A <input type="checkbox"/> 50 A <input type="checkbox"/> 2 A</p>
Q18.	<p>Give the SI unit of self-inductance.</p> <p><input checked="" type="checkbox"/> Henry <input type="checkbox"/> Farad <input type="checkbox"/> Ampere <input type="checkbox"/> Maxwell</p>
Q19.	<p>What is the most common application of LC oscillators?</p> <p><input type="checkbox"/> Torch <input type="checkbox"/> Fans <input type="checkbox"/> Switches <input checked="" type="checkbox"/> Radio transmitters</p>

Q20.	<p>If the wavelength of electromagnetic radiation is doubled, what will happen to the energy of photons?</p> <p>Infinite Remains the same Doubled Halved</p>
Q21.	<p>Find out the minimum energy required to take out the only one electron from the ground state of Li^+?</p> <p><input type="checkbox"/> 25.3 eV <input type="checkbox"/> 67.9 eV <input checked="" type="checkbox"/> 122.4 eV <input type="checkbox"/> 13.6 eV</p>
Q22.	<p>Calculate the energy of a photon of wavelength 6600 angstroms.</p> <p><input type="checkbox"/> 300×10^{-19} J <input type="checkbox"/> 30×10^{-19} J <input checked="" type="checkbox"/> 3×10^{-19} J <input type="checkbox"/> 0.3×10^{-19} J</p>
Q23.	<p>The size of the atom is proportional to which of the following?</p> <p><input type="checkbox"/> A <input type="checkbox"/> $A^{-1/3}$ <input type="checkbox"/> $A^{2/3}$ <input checked="" type="checkbox"/> $A^{1/3}$</p>
Q24.	<p>Find out the rms value of current in the circuit wherein a 35 mH inductor is connected to 200 V, 70 Hz ac supply.</p> <p><input type="checkbox"/> 45 A <input checked="" type="checkbox"/> 13 A <input type="checkbox"/> 20 A <input type="checkbox"/> 15 A</p>

Q25.	<p>How many types of power can be defined in an AC circuit?</p> <p>3 1 2 5</p>
Q26.	<p>Determine the peak current if an inductor of inductance 500 mH is connected to an ac source of peak emf 650 V and frequency 100 Hz</p> <p><input type="checkbox"/> 1.55 A <input checked="" type="checkbox"/> 2.07 A <input type="checkbox"/> 9.87 A <input type="checkbox"/> 7.89 A</p>
Q27.	<p>A light wave enters from air into glass. How will the frequency of the wave be affected?</p> <p><input type="checkbox"/> Decreases <input checked="" type="checkbox"/> Remains unchanged <input type="checkbox"/> Increases <input type="checkbox"/> Insignificant</p>
Q28.	<p>Can the relative refractive index of a medium w.r.t. another medium be less than unity?</p> <p><input type="checkbox"/> Indefinite <input type="checkbox"/> Insufficient data <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
Q29.	<p>Which of the following is the reason for signal distortion?</p> <p><input type="checkbox"/> Speed of the signal <input type="checkbox"/> Wearing down of the essential elements <input type="checkbox"/> Absence of a channel <input checked="" type="checkbox"/> Channel imperfection</p>

Q30. Identify the layer where ozone is present.

Ionosphere

Troposphere

Mesosphere

Stratosphere