ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

EXAMINATION MATERIAL OF ZUEB 2021-2022

GRADE: XII **SUBJECT: PHYSICS**

SECTION # C
DETAILED ANSWER QUESTIONS

CHAPTER # 11 HEAT

TOPICS	**Kinetic Molecular Theory of Gases** • Interpretation of Pressure on Kinetic theory of Gases
	Thermodynamics • First law of thermodynamics • Applications of first law of thermodynamics • The Carnot Engine

1. State the 1st law of thermodynamics with any two processes.
2. Derive the relation for the pressure of an ideal gas in terms of density and mean square velocity.
3. Define Carnot Engine also explain Carnot's Cyclic process .

CHAPTER # 12 ELECTROSTATICS

	Gauss's Law • Applications of Gauss's law • Electric intensity due to an infinite sheet of charge

1. State Gauss's law. Apply it to determine the electric intensity at a point due to a thin infinite sheet of charges.

CHAPTER # 14 MAGNETISM & ELECTROMAGNETISM

	Ampere's law Applications of Ampere's law • Solenoidal Field • Toroidal Field
	Electromagnetic Induction • Faraday's law of electromagnetic induction • Lenz's law • Self-Induction • Mutual Induction • A.C Generator • Transformer

1. State and prove Ampere's law and also derive magnetic field of induction inside long solenoid.
2. State Faraday's Law of electromagnetic induction. Explain the phenomenon of self or mutual induction.
3. Describe with a neat diagram construction and working of AC Generator. Give its relevant expression.
4. Describe with a neat diagram construction and working of transformer. Give its relevant expression.

CHAPTER # 15 ELECTRICAL MEASURING INSTRUMENT

TOPICS	**Galvanometer** • The moving coil galvanometer

1. Describe the construction and working of a moving coil galvanometer.?

CHAPTER # 17 ADVENT OF MODERN PHYSICS

TOPICS	**Special Theory of Relativity** • Consequences of special theory of relativity
	The Photo Electric Effect • Einstein's explanation of Photoelectric effect on the basis of quantum theory

1. What is photoelectric effect? Discuss some of the important results of this theory. Derive Einstein's photoelectric equation.

2. What is Compton Effect? Explain it on the basis of Quantum Theory. Derive relation for the Compton Shift.

CHAPTER # 18 THE ATOMIC SPECTRA

TOPICS	**Bohr's Atomic Model** • Bohr's radius and energy for Hydrogen atom

1. State the basic postulates of Bohr's Theory of atomic structure. Derive an expression for the radius of n^{th} orbit of Hydrogen atom.

CHAPTER # 19 THE ATOMIC NUCLEUS

TOPICS	**Radioactivity** • The law of Radioactive Decay

1. State and explain the law of radioactive decay with it's exponential curve

CHAPTER # 20 NUCLEAR RADIATION

TOPICS	**Wilson Cloud Chamber**
	Geiger Counter

1. Explain the construction & working of Geiger counter.

2. Explain the construction & working of Wilson cloud chamber.