ZIAUDDIN UNIVERSITY EXAMINATION BOARD

Total Time 3 hours
Total Marks: 75

Class: X **SECONDARY SCHOOL CERTIFICATE MODEL PAPER 2026**
Time Allowed: 30 minutes **SUBJECT: PHYSICS**
Q1: **SECTION "A" (MULTIPLE CHOICE QUESTIONS) (MCQ)** **Marks: 12**

Note: Attempt **ALL** questions from section "A". Each question carries **ONE** mark.

i. The upper part of a wave is called:
A. Trough B. Crest C. Compression D. Rarefaction

ii. Which type of wave cannot travel through a vacuum?
A. Microwave B. Sound wave C. UV wave D. X-rays

iii. A wave has a frequency of 2 Hz and a wavelength of 4 m. What is its speed?
A. 2 m/s B. 6 m/s C. 8 m/s D. 10 m/s

iv. What is the range of human hearing (audibility)?
A. 20 Hz to 2000 Hz B. 2 Hz to 200 Hz C. 20 Hz to 20,000 Hz D. 2000 Hz to 3000 Hz

v. What is the Boolean expression for an AND gate?
A. A.B B. A = B C. A + B D. A × B

vi. What happens to the speed of sound when the temperature increases?
A. It decreases B. It increases C. It remains constant D. None of the above

vii. A magnifying glass is also known as a:
A. Endoscope B. Compound microscope C. Simple microscope D. Telescope

viii. What is the relationship between electric force and electric field intensity?
A. They are parallel to each other B. They are perpendicular to each other
C. They are opposite to each other D. They are in any direction

ix. A computer program that translates one instruction at a time into machine language is called a:
A. Interpreter B. CPU C. Compiler D. Simulator

x. Two resistors of 6 Ω and 12 Ω are connected in parallel. What is their equivalent resistance?
A. 7 Ω B. 6 Ω C. 4 Ω D. 5 Ω

xi. The resistance of a conductor does *not* depend on its:
A. Length B. Cross-sectional area C. Density D. Resistivity

xii. The maximum mass of an atom is concentrated in the:
A. Nucleus B. Neutrons C. Electrons D. Protons

(Practical Based Assessment) **Marks: 15**

Q2: Attempt **ALL** questions.

i. A doctor uses a specific machine to scan a patient for suspected bone fractures. Which electromagnetic wave is the machine utilizing to penetrate tissue but not dense bone?
A. Infrared rays B. Microwaves C. X-rays D. Radio waves

ii. When using a television remote control to change channels from across the room, the invisible beam sent to the TV sensor is made of:
A. Ultraviolet rays B. Gamma rays C. Infrared waves D. Ultrasound

iii. A telecommunications engineer sets up a satellite dish to receive international TV signals. The dish is specifically designed to capture which type of high-frequency wave from space?:
A. Microwaves B. X-rays C. Sound waves D. Alpha rays

iv. A dentist uses a small mirror attached to a handle to examine the back of a patient's teeth. To get a magnified, upright image, the mirror used must be:
A. Plane B. Convex C. Concave D. Cylindrical

v. A medical endoscope is used to look inside a patient's stomach. The flexible tube guides light perfectly around bends without escaping. This works entirely on the principle of:
A. Total internal reflection B. Dispersion
C. Diffraction D. Polarization

vi. A student looks at a drop of water acting as a simple magnifier over a newspaper. The water drop functions similarly to a:
A. Concave lens B. Convex lens C. Prism D. Glass slab

vii. You are wiring celebration lights. When one bulb burns out, all the other lights go off. What design flaw caused this?
A. They were connected in parallel B. They were connected in series
C. The voltage was too low D. The current was alternating

viii. While turning the volume knob of an old radio to make the sound louder, the user is actually adjusting a variable:
A. Capacitor B. Resistor C. Inductor D. Diode

ix. A student builds a circuit, but the ammeter reads zero. The battery is new, and the switch is closed. The most logical reason is:
A. The circuit has a broken wire (open circuit) B. The resistance is too low
C. The ammeter is in parallel D. The voltage is too high

x. You plug your mobile phone charger into a 220V wall socket, but your phone only needs 5V to charge. The component inside the charger making this possible is a:
A. Step-up transformer B. Step-down transformer C. D.C. Motor D. Commutator

ZIAUDDIN UNIVERSITY EXAMINATION BOARD

Total Time 3 hours
Total Marks: 75

xi. A student rapidly pushes a strong bar magnet into a hollow coil of wire connected to a galvanometer. The needle briefly deflects. This phenomenon is called:
A. Electrostatic induction B. Magnetic shielding
C. Electromagnetic induction D. Resistance heating

xii. Inside a battery-powered toy car, electrical energy from the battery makes the wheels spin. The primary device enabling this energy conversion is a:
A. A.C. Generator B. D.C. Motor C. Transformer D. Capacitor

xiii. An engineer connects a microphone to a Cathode Ray Oscilloscope (CRO) to test it. When they speak into the microphone, the screen displays a visual representation of:
A. The magnetic field B. The temperature change
C. The electrical voltage signal over time D. The speed of the sound

xiv. In older, bulky televisions, an electron beam is swept across the screen to draw the picture. The beam is deflected perfectly into place by:
A. Acoustic waves B. Lenses and prisms C. Magnetic and electric fields D. Mechanical shutters

xv. A digital security safe only unlocks when both Button A AND Button B are pressed simultaneously. The logic gate controlling this mechanism is:
A. OR gate B. AND gate C. NOT gate D. NOT gate

END OF SECTION A

Class: X **SECONDARY SCHOOL CERTIFICATE MODEL PAPER 2026**
Time: 2 hours 30 minutes **SUBJECT: PHYSICS (SECTION "B" & SECTION "C")** **Total Marks 48**

SECTION "B" (SHORT ANSWER QUESTIONS) 24 Marks

Q3: Answer any **EIGHT** questions from section.

i. Identify two environmental conditions that influence the speed of sound in air.
ii. Define a transformer and explain the principle of electromagnetic induction behind its operation.
iii. List three practical applications of electromagnetic radiation in daily life.
iv. Write three major distinctions between analogue and digital devices.
v. Three capacitors of 4 μF, 6 μF, and 12 μF are connected in series. Calculate the total capacitance of the combination.
vi. 12 J of heat is produced every second in a 6 Ω resistor. Calculate the voltage applied across it.
vii. A student snaps her fingers near a mountain and hears an echo 0.8 seconds later. Calculate the distance between the student and the mountain. (Speed of sound = 340 m/s)
viii. A charge of 5 μC is placed in a field of 2.5×10^3 N/C. Compute the electrostatic force acting on the charge.
ix. Determine the frequency of radio waves used in an MRI unit with a wavelength of 2.5 m.
x. A potential difference of 120 V exists between two points. If 600 J of work is required to move a charge between these points, determine the amount of charge moved.
xi. An object is placed 20 cm in front of a convex mirror with a focal length of 12 cm. Find the image location and describe its characteristics.
xii. A conductor 1.2 m long carries 3 A current and is placed at 45° to a magnetic field of 1.2 T. Calculate the magnetic force experienced by the conductor.

SECTION "C" (DETAILED ANSWER QUESTIONS) 24 Marks

Q4: Answer any **FOUR** questions from this section.

i. Why is a CRO used in electronic diagnostics? List three fields where it plays a vital role.
ii. Compare SHM with non-periodic motion. Give examples of each from daily life.
iii. How has cloud storage changed information handling? Compare it with any two traditional storage devices.
iv. An electric iron is rated 220 V, 1000 W. Calculate the current drawn by the appliance.
v. Explain how a convex lens is used in a magnifying glass. Why is the object placed close to the lens?
vi. Explain the role of radioactive isotopes in medicine and agriculture. Give two examples of each.

END OF PAPER