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Signature of Student. _____

Sign and Seal of Supt _____

Student Name _____

Name of Paper: PHYSICS (PH-II)

SSC-10th-Abbottabad-2026

Paper Date: 14-APR-26

Paper Code: 72

Paper Version _____

SEAL

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Roll No
Student Must Fill the
Roll Number Bubbles

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سوالات

سوال نمبر کے مطابق درست جواب نمبر کا دائرہ پُر کریں۔

- When the mass of the bob of simple pendulum is doubled keeping its length unchanged, its time period will be: a. doubled, b. halved, c. constant, d. one-fourth
- The wavelength of water waves travelling with a speed of 10ms^{-1} is 0.5m. The frequency of the water waves is: a. 5Hz, b. 10Hz, c. 20Hz, d. 30Hz
- The intensity level of a certain sound is 20dB. How many times is this sound more intense than faintest audible sound? a. 10, b. 20, c. 50, d. 100
- An object is placed at a distance of 20 cm from a convex lens. Its inverted image is formed at a distance of 20 cm. The focal length of the lens is: a. 10cm, b. 20cm, c. 30cm, d. 60cm
- The reciprocal of focal length of a lens expressed in meters is called a. focal point, b. principal axis, c. power of lens, d. magnification
- The capacitance of a capacitor is independent of: a. charge only, b. applied voltage only, c. size of its plates, d. both charge and applied voltage
- Two resistances, each of 10 ohms, connected in parallel, will have effective resistance of: a. more than 20Ω , b. less than 5Ω , c. equal to 5Ω , d. more than 5Ω and less than 20Ω
- At which angle does a current carrying conductor placed in a magnetic field experience a force equal to half of the maximum force? a. 30° , b. 45° , c. 90° , d. 180°
- Identify the gate having a single input and single output: a. AND gate, b. OR gate, c. NOT gate, d. NAND gate
- The set of instructions and rules to design and use information system is called: a. hardware, b. procedures, c. human resource, d. information
- The half-life of a substance is 20 days. How much of 200g of the substance will be left after 60 days a. 5g, b. 10g, c. 25g, d. 30g
- A radioactive nuclide ${}_{27}\text{X}^{60}$ decays to ${}_{27}\text{Y}^{60}$. The type of rays being emitted consists of: a. alpha particles, b. beta particles, c. electromagnetic radiations, d. both alpha and beta

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and pack the sheet with solved OMR sheets in roll number order

Time: 2 Hours 40 Minutes

SECTION-B

Marks: 32

NOTE: Attempt any eight of the following short questions. Each question carries 4 marks

- Q.1 Define the terms loudness and quality of sound. Which physical property of sound determines its loudness and how does loudness change with that physical property? 1+1+1+1
- Q.2 Calculate the speed of sound at a temperature of -30°C . 1+1+1+1
- Q.3 A ray of light is incident on diamond from air at the angle of incidence of 30° . If refractive index of diamond is 2.4, calculate the angle of refraction in diamond. (Take refractive index of air as 1). 1+1+1+1
- Q.4 State Coulomb's law and express it in mathematical form. List one similarity and one difference between coulomb force and gravitational force 1+1+1+1
- Q.5 Explain the effect of the following on electrical resistance of a metallic conductor.
(i) Length (ii) Cross sectional area (iii) Temperature (iv) Nature of material 1+1+1+1
- Q.6 Draw and interpret the V-I characteristics graph for metallic conductors 2+2
- Q.7 A current carrying rectangular coil is placed in a uniform magnetic field. Using neat diagram, explain why does the coil experience no net force but a torque. 1+1+1+1
- Q.8 Draw the truth table and circuit symbol for NAND gate. Also write its Boolean equation. 2+1+1
- Q.9 What are secondary storage devices? Explain the use of hard disk as information storage device. 2+2
- Q.10 What changes will occur to the nucleus of an atom of atomic number Z and mass number A when it undergoes: (i) Alpha decay (ii) Beta decay. Write down the general equation that represents each decay. 1+1+1+1
- Q.11 Define and explain half-life of a radioactive substance with an example. 1+2+1

SECTION-C

Marks: 21

NOTE: Attempt any three of the following questions. Each question carries 7 marks

- Q.12 i. Prove mathematically that the time period of simple pendulum of length L is independent of the mass of its bob (assuming small angular displacement). 1+1+1+1
- ii. What must be the length of simple pendulum on the surface of planet mercury if it has to complete one vibration in 3s? ($g_{\text{mercury}} = 3.7\text{ms}^{-2}$) 1+1+1
- Q.13 i. Using its ray diagram, discuss the purpose, construction, working and magnifying power of compound microscope. 1+1+1+1
- ii. A 5cm high object is placed at 15cm from a convex lens of 5cm focal length. Find the position of the image formed by the lens. 1+1+1
- Q.14 i. Derive the formula for the equivalent capacitance of three capacitors of capacitances C_1 , C_2 and C_3 connected in parallel across a battery of voltage V. 1+1+1+1
- ii. Two capacitors of $5\mu\text{F}$ and $10\mu\text{F}$ are connected in series across a 9V battery. Calculate the potential difference across each capacitor. 1+1+1
- Q.15 i. What is transformer? State its working principle. How does a step up transformer minimize power loss in the transmission lines? 1+2+1
- ii. The current in primary coil increases from 0A to 20A in 0.05s. If the emf induced in the secondary coil is 100V, calculate the mutual inductance between the two coils. 1+1+1