

PHYSICS Class 10th SSC-10th-Swat-2026 Time: 20 Minutes Marks: 12 Multiple Choice Questions 01 Mark for each	Paper Code ① ☒ ② ③	Roll No. of the Student Serial No. Of the Answer Book _____
---	--	--

SECTION-A

Note:

- 1) Attempting all MCQs is compulsory. This paper along with the OMR sheet must be returned to the superintendent after due time.
- 2) Fill the circle (A) (B) (C) (D), which one is correct with blue or black ball in separate OMR Sheet like ☒
- 3) If more than one circle in the OMR sheet is filled then no credit will be given to such answer.

- i. If a conductor obeys Ohm's law, its electrical resistance must:

(A) Increase with voltage
(B) Decrease with voltage
☒ Not change with voltage
(D) Be zero
- ii. A current carrying coil placed in a uniform magnetic field will experience:

(A) Non zero net force
(B) Zero torque
☒ Non zero torque
(D) Zero net force and zero torque
- iii. The output of NAND gate is low when:

(A) One of its input is high
☒ Both of its inputs are high
(C) Both of its inputs are low
(D) Output of AND gate is inverted
- iv. Identify the device that stores data permanently:

☒ Hard disk
(B) RAM
(C) Cache memory
(D) Antenna
- v. The half-life of a radioactive substance is 10 days. This means that after 20 days, the number of remaining atoms in the sample of 800 atoms will be:

(A) 800
(B) 400
☒ 200
(D) 100
- vi. Identify the particle X in the given nuclear reaction ${}_6\text{C}^{14} = {}_7\text{N}^{14} + \text{X} + \text{Q}_\gamma$:

(A) Alpha
☒ Beta
(C) Proton
(D) Neutron
- vii. The time period of a simple pendulum of length L is T. If its length becomes 9L, then its new time period will be:

(A) T
(B) 2T
☒ 3T
(D) 9T
- viii. A wave of frequency 1700Hz travels at a speed of 340 ms^{-1} . The wavelength of the wave is:

(A) 0.1 m
☒ 0.2 m
(C) 0.3 m
(D) 0.4 m
- ix. If the intensity of a sound is 10000 times the intensity of faintest audible sound, its intensity level in dB is:

(A) 10
(B) 20
(C) 30
☒ 40
- x. If the angle of incidence of light is 45° , then the angle of reflection from a smooth surface will be:

(A) More than 45°
(B) Less than 45°
☒ Equal to 45°
(D) Zero degree
- xi. The working of optical fibers is based on the phenomenon of:

(A) Reflection of light
☒ Total internal reflection
(C) Diffraction of light
(D) Polarization of light
- xii. A capacitor stores $36\mu\text{C}$ of charge when it is connected to 12V battery. The capacitance of the capacitor is:

(A) $1\mu\text{F}$
(B) $2\mu\text{F}$
☒ $3\mu\text{F}$
(D) $6\mu\text{F}$

Note: Time allowed for section B and C is 2 hours and 40 minutes.

SECTION "B"

Marks: 32

Attempt any EIGHT Parts out of the following. Each Part carries equal marks.

1. What is the nature of sound and how is sound produced? Why is the sound produced by a bell ringing in an evacuated jar not heard?
2. An ultrasound pulse from SONAR takes 4s to travel to the seabed and return. If the speed of sound in water is 1400ms^{-1} , calculate the depth of the sea.
3. Define refraction of light. How is incident light deviated by glass prism? Explain by drawing neat diagram and label the angle of deviation.
4. Two point charges of magnitudes $15\mu\text{C}$ and $40\mu\text{C}$ in air exert a force of 300 N on each other. Determine the distance between them.
5. The electrical resistance of a metallic wire is R when its length and cross sectional area are L and A. Describe what will be the effect on its electrical resistance when:
 - a) its length is increased to 4L
 - b) its cross sectional area is decreased to A/4
6. State Ohm's law and express it in mathematical form. If we double the applied voltage, how will it affect the resistance of:
 - a) Ohmic conductor
 - b) non ohmic conductor
7. Under what condition, a current carrying conductor placed in a magnetic field experiences: (a) zero force (b) maximum force (c) half of maximum force
What will be the direction of this force?
8. Differentiate between analogue and digital electronics.
9. Define transmission, fax machine, photo phone and computer.
10. What is radioactivity and why are some atom radioactive? Comment on the statement, "Radioactivity is a spontaneous and random phenomenon".
11. A radioactive sample contains N_0 number of atoms at time $t=0$. Prove that the number of atoms remaining after n half-lives is given by: $N=N_0(1/2)^n$.

SECTION "C"

Marks: 21

Note: Attempt any THREE questions of the following. Each question carries equal Marks.

12. (a) What is wave? List two common features of waves. Describe with the help of an example that a wave transfers energy along a medium without transfer of matter. 4
(b) Two consecutive crests in a train of string waves are 3m apart. The waves are travelling with a speed of 6ms^{-1} . Calculate the frequency of the waves. 3
13. (a) What is total internal reflection and critical angle? State the two conditions of total internal reflection. 4
(b) The convex lens of magnifier has focal length 5cm. It produces a virtual image at a distance of 25 cm from the eye. How far from the lens should the object be placed? 3
14. (a) Define capacitance and its unit. How do the plates of a capacitor acquire charge when connected to a battery of voltage V? 4
(b) Two capacitors of $15\mu\text{F}$ and $30\mu\text{F}$ are connected in series across 60V battery. Calculate: 3
a. Equivalent capacitance of the combination. b. Charge stored on each capacitor
15. (a) Define the following. 4
a. Transformer b. Mutual Induction c. coefficient of mutual induction and its unit
(b) Discuss the use of step up transformer by power companies for efficient transmission of electric power and reducing power losses. 3