

BOARD OF SECONDARY EDUCATION, KARACHI
Secondary School Certificate (S.S.C.) Annual Examination

Class X (Science Group)	Physics	2024	English Medium
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Max. Marks: 60 | Time: 3 Hours

SECTION "A" — MULTIPLE CHOICE QUESTIONS (MCQs) Marks: 12

NOTE: (i) Attempt all the Questions of this Section. (ii) Do not copy down the part questions. Write only the answer against the proper number of the Question and its part according to the question Paper. (iii) Each question carries 1 Marks

1. Choose the correct Answer for each from the given options:

1.	The reason of blue colour of the sky is: ☆ Scattering of Light ☆ Dispersion of Light ☆ Reflection of Light ☆ Refraction of Light
2.	A wave on slinky spring with frequency 4 Hz and wave length of 0.4 m has speed ☆ 16 m/s ☆ 1.9 m/s ☆ 1.6 m/s ☆ 0.1 m/s
3.	Three resistances of 3Ω are connected in parallel, their equivalent resistance will be: ☆ $\frac{1}{2}\Omega$ ☆ 1Ω ☆ 3Ω ☆ 9Ω
4.	When we heat the metal at a high temperature, It emits: ☆ Holes ☆ Neutrons ☆ Protons ☆ Electrons
5.	Infra sound can be heard by: ☆ Cat ☆ Bat ☆ Elephant ☆ Human
6.	The number of protons in ${}_{92}\text{U}^{237}$ is: ☆ 92 ☆ 237 ☆ 145 ☆ 329
7.	To illuminate the inaccessible places in the teeth, Dentists use: ☆ Concave mirror ☆ Convex mirror ☆ Convex lens ☆ Concave lens
8.	S.I. unit of EMF is: ☆ ampere ☆ coulomb ☆ volt ☆ watt
9.	The safest way to dispose off a large quantity of radioactive waste is: ☆ Washing it in the drain ☆ Burning it on a fire ☆ Buying it in a dry rock deep underground ☆ Draining it into the sea
10.	The part of a D.C. motor which reverses the direction of current through the coil at every half cycle is called: ☆ brushes ☆ armature ☆ slip rings ☆ commutator
11.	It is a software: ☆ Hard Disk ☆ Monitor ☆ Program ☆ CPU
12.	The half-life of Radio-active isotope Cobalt (Co – 60) is: ☆ 5.27 seconds ☆ 5.27 minutes ☆ 5.27 days ☆ 5.27 years

SECTION "B" (Short Answer Question) Marks: 24

NOTE: Answer any **EIGHT** questions from this section. Each question carries 3 (Three) Marks.

2.	Write down two factors on which speed of sound in air depends.	3
3.	Write three uses of electromagnetic waves.	3
4.	Derive the equation: $\frac{1}{C_e} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3}$	3
5.	What are the main features of Rutherford's atomic model?	3
6.	What is transformer and on which principle it works?	3
7.	Write down any three differences between Analogue and Digital electronics.	3
8.	A boy clapped his hands near a wall and heard the echo after 0.6 seconds. What is the distance of the wall from the boy? (speed of sound = 340 m/s)	3
9.	Calculate the frequency of radio waves of 3 m wavelength used in an MRI unit.	3
10.	A pin is positioned at a distance of 15 cm from a convex mirror whose focal length is 10 cm. Determine the position and nature of the image.	3
11.	If $3\mu\text{C}$ charge is placed in the electric field intensity $3.42 \times 10^{10}\text{N/C}$, what will be the force on it?	3
12.	9J of heat is produced each second in a 4Ω resistance. Find the potential difference across the resistor.	3
13.	A wire carrying 2 Ampere current and has length of 150 cm between the poles of a magnet is kept at an angle of 30° to the uniform field of 0.8 T. Find the force acting on the wire.	3

SECTION "C" (Detailed - Answer Question) (24)

NOTE: Attempt any **FOUR** questions from this Section. Each question tries (Six) 6 marks.

14.	What is Simple Harmonic Motion? Prove that the motion of a simple pendulum is simple harmonic motion.	6
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15.	Draw ray diagrams of a convex lens when object is placed at. (i) 2F (ii) Beyond 2F	6
16.	What do you mean by C.R.O? Write its working with the help of a diagram.	6
17.	What is information storage device? Name six information storage devices and describe use of any three.	6
18.	State and explain Ohm's law also write any three limitations of this law.	6
19.	What is Radio activity? Write down any two common radiation hazards and six safety measures against radiations.	6

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