

## BOARD OF SECONDARY EDUCATION, KARACHI

Secondary School Certificate (S.S.C.) Annual Examination

Subject: Physics

Class: Class 9th (Science Group)

Year: 2024

Medium: English | Time: 3 Hours | Max. Marks: 60

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

(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 question:

|        |                                                                                                                                            |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------|
| (i)    | Spring balance is used to measure:<br>☆ Mass ☆ Weight ☆ Elasticity ☆ Density                                                               |
| (ii)   | A burning candle is an example of this state of matter:<br>☆ Gas ☆ Liquid ☆ Solid ☆ All of these                                           |
| (iii)  | Evaporation occurs at:<br>☆ Freezing point ☆ Melting point ☆ Boiling point ☆ All temperatures                                              |
| (iv)   | It is not a unit of pressure:<br>☆ Pascal ☆ Bar ☆ Atmosphere ☆ Newton                                                                      |
| (v)    | Centrifugal force is always:<br>☆ towards the centre ☆ away from centre ☆ towards the circular path ☆ all sides                            |
| (vi)   | The least distance covered in a particular direction is called:<br>☆ Distance ☆ Speed ☆ Displacement ☆ Acceleration                        |
| (vii)  | 91.60 has significant numbers:<br>☆ 2 ☆ 3 ☆ 4 ☆ 5                                                                                          |
| (viii) | It is not a vector quantity:<br>☆ Time ☆ Weight ☆ Displacement ☆ Acceleration                                                              |
| (ix)   | Natural satellite of Earth is:<br>☆ Neptune ☆ Jupiter ☆ Moon ☆ Mars                                                                        |
| (x)    | If a machine performs 20J work in 10 seconds. Then its power will be:<br>☆ 200 watt ☆ 20 watt ☆ 2 watt ☆ 0.2 watt                          |
| (xi)   | $1.013 \times 10^5 \text{ Pa}$ is equal to:<br>☆ 1 atmosphere ☆ 2 atmosphere ☆ 3 atmosphere ☆ 4 atmosphere                                 |
| (xii)  | A body of mass 50 kilogram whose acceleration is $5\text{ms}^{-2}$ , the force affecting on it will be:<br>☆ 200 N ☆ 250 N ☆ 260 N ☆ 270 N |

## SECTION "B" (SHORT-ANSWER QUESTIONS) — Marks: 24

Note: Answer any EIGHT questions from this section. Each question carries Three marks.

|     |                                                                                                                                                                                                              |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.  | Define fundamental and derived quantites. Also write three examples of each.                                                                                                                                 |
| 3.  | State Newton's Second Law of Motion and derive its equation.                                                                                                                                                 |
| 4.  | Write down three difference between Boiling Point and Evaporation.                                                                                                                                           |
| 5.  | What is potential energy? Derive $P.E = mgh$ .                                                                                                                                                               |
| 6.  | What do you mean by elasticity? State Hooke's Law and write its mathematical expression.                                                                                                                     |
| 7.  | Define torque. Write down its formula and unit.                                                                                                                                                              |
| 8.  | A bus starts form rest and travels along a straight path its velocity becomes $15\text{ms}^{-1}$ in 5 seconds. Calculate acceleration of the bus.                                                            |
| 9.  | A car is running on a circular path of highway having about $100\text{m}$ radius. The mass of the car is $600\text{kg}$ and its velocity is $72\text{kmh}^{-1}$ . Find centripetal force exerted by the car. |
| 10. | Calculate the spring constant which extends by a distance of $3.5\text{cm}$ when a load of $14\text{N}$ hung from its end.                                                                                   |
| 11. | A planet has mass four times of earth and radius two time that of earth is $10 \text{ ms}^{-2}$ . What will be its acceleration due to gravity on the planet?                                                |
| 12. | What will be the kinetic energy of a boy of mass $50\text{kg}$ driving a bike with the velocity of $2\text{ms}^{-1}$                                                                                         |
| 13. | A man is pushing a Trolley for a horizontal ground with a force of $100\text{N}$ making an angle of $60^\circ$ with ground. Find the horizontal and vertical components of the force.                        |

## SECTION "C" (DETAILED-ANSWER QUESTIONS) — Marks: 24

Note: Attempt any FOUR questions from this Section. Each question carries (Six) 6 marks.

|     |                                                               |
|-----|---------------------------------------------------------------|
| 14. | What is kinematics? Derive the equation $2aS = v_f^2 - v_i^2$ |
| 15. | Define equilibrium. Explain its types and two conditions.     |
| 16. | State and explain Boyle's Law. Write its one application.     |

|            |                                                                                                          |
|------------|----------------------------------------------------------------------------------------------------------|
| <b>17.</b> | Calculate the mass of earth by using Newton's law of gravitation.                                        |
| <b>18.</b> | Define Thermal expansion. Derive $\Delta L = \alpha L \Delta T$                                          |
| <b>19.</b> | Write any two advantages and two disadvantages of friction. Also write two methods of reducing friction. |

**Notes on this transcription**

- Transcribed from the English-medium printing of this paper. An Urdu-medium printing of the same paper is published separately.
- The Urdu-medium printing differs in four places: Section B Q.4 — this sheet says *Boiling Point* where the Urdu says *melting point*; Section B Q.9 — this sheet gives a 100m *radius* where the Urdu gives a 100m *diameter*; Section A (ix) — this sheet says *natural satellite* where the Urdu says *natural planet*; Section B Q.8 and Q.11 — the Urdu sheet prints the units as  $15\text{m}^{-1}$  and  $10\text{m}^{-1}$ .
- Board spellings and wording kept verbatim, including “quantites”, “starts form rest”, “three difference”, “two time that of earth” and “Each question tries (Six) 6 marks” in Section C.
- This is a guide reprint rather than an original board sheet, so it carries no paper code and no monogram. The publisher had ticked the answer options on the source copy; options are reproduced unmarked here, as no answer key is ever included.

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