MRD-IX-19 (A)

Total Time: 3:00 Hours

Physics (9th)

(Fresh/New Course)

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Total Marks: 65

Note: There are three sections in this paper i.e. Section A, B & C.

VERSION : B

Time Allowed: 20 Minutes

"Section-A"

Marks: 12

INSTRUCTIONS:

- Attempt this section on the MCQs Answer Sheet only.
- Use black ball point or marker for shading only one circle for correct option of a question.
- No mark will be awarded for cutting, erasing, over writing and multiple circles shading.

Q. 1. Choose the correct option i.e. A,B,C, or D.

1. Amount of substance measured in .....

Ⓐ Kg ● Mole Ⓒ m^3 Ⓓ Power of 10

2. Which of the following is scalar quantity?

Ⓐ Weight ● Speed Ⓒ Velocity Ⓓ Tension

3. Conventionally anti-clock wise torque is taken as .....

● Positive Ⓑ Negative Ⓒ Parallel Ⓓ Zero

4. One horse power (hp) = ...

Ⓐ 550 watt Ⓑ 1000 watt Ⓒ 476 watt ● 746 watt

5. The product of mass and velocity is called .....

Ⓐ Force Ⓑ Pressure ● Momentum Ⓓ Torque

6. The temperature of normal human body is .....

Ⓐ 32 °F Ⓑ 89 °F ● 37 °C Ⓓ 0 K

7. The angle at which X and Y components of force are equal is.....

Ⓐ 0° Ⓑ 30° ● 45° Ⓓ 60°

8. 1 joule = ...

Ⓐ 1meter × 1sec ● 1newton × 1meter Ⓒ 1 kg × 1 meter Ⓓ None of these

9. Pressure at depth in fluid .....

● Increases Ⓑ Decreases Ⓒ Remains the same Ⓓ None of these

10. The temperature at which a body is not radiating any heat is .....

Ⓐ 0 °C Ⓑ 0 °F ● 0 K Ⓓ All of these

11. Moment of force is called .....

● Torque Ⓑ Momentum Ⓒ Acceleration Ⓓ Inertia

12. Among speed, temperature, current and momentum, the number of base quantities is .....

Ⓐ 1 Ⓑ 2 ● 3 Ⓓ 4

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"Section-B"

Marks: 32

Q. 2. Attempt any Eight (8) of the following parts. Each part carries equal marks.

(i) Name any four derived units and write them as their base units.

(ii) A ball is thrown upward with an initial speed of 5 m/s. What will be its speed when it returns to starting point?

(iii) Prove graphically that $V_f = V_i + at$

(iv) Differentiate between static friction and kinetic friction.

(v) Why is the surface of a conveyor belt made rough?

(vi) Why does dust fly off, when a hanging carpet is beaten with a stick?

(vii) Why do wearing high heeled shoes sometimes cause lower back pain?

(viii) Why for same height, larger and smaller satellites must have same orbital speeds?

(ix) Why water tanks are constructed at the highest level in our houses?

(x) Why is ice at 0 °C a better coolant of soft drinks than water at 0 °C ?

(xi) How woolen sweaters keep us warmer in winter?

"Section-C"

Marks: 21

Note:- Attempt any Three (3) questions. Each question carries equal marks.

Q. 3. (a) Define Momentum. Relate force to change in momentum.

(b) Prove graphically that: $2as = V_f^2 - V_i^2$

Q. 4. (a) State the law of Universal Gravitation. Determine the mass of earth by applying law of gravitation.

(b) At which altitude above Earth's surface would the gravitational acceleration be 4.9 m/s^2.

Q. 5. (a) Using kinetic molecular model of matter, explain three states of matter.

(b) An 80 cm long, 1.0 mm diameter steel guitar string must be tightened to a tension of 2000 N by turning the tuning screws. By how much is the string stretched?

Q. 6. (a) Explain thermal conductivity of a substance and its mathematical description.

(b) State the law of conservation of energy and mass energy conversion relation.