P-414

Paper Code: _____

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ESKP-ix1901

PHYSICS (New Course) – 9th

Time: 3 hours **Marks: 65**

Note: There are THREE Sections in this paper i.e. A, B & C. Attempt Section-A and return it to the Superintendent within the given time. No marks will be awarded for cutting, erasing and overwriting. Mobile Phones are strictly prohibited in Examination Hall.

Time: 15 minutes **Section-A** **Marks: 12**

QNo.1 Select the correct option and shade (A,B,C,D) in the given Bubble Answer Sheet.

i. 37°C = _____

A- 273 K B- 273 °F C- 98.6°F D- 0 K

ii. Which of the following is the best heat conductor?

A- Aluminium B- Tin C- Iron D- Copper

iii. How many cubic centimeters are there in a litre?

A- 10 B- 100 C- 1000 D- 10000

iv. What do we call the pull of gravity on an object?

A- Mass B- Density C- Momentum D- Weight

v. Unit of coefficient of friction is _____.

A- N B- Kg C- Nm D- has not unit

vi. Force needed to produce an acceleration of $10m/s^2$ in a ball of mass 0.5kg is _____.

A- 20N B- 10.5N C- 9.5N D- 5N

vii. Two masses ore separated by a distance r. If both masses are doubled, the force of interaction between the two masses changes by a factor of _____.

A- 2 B- 4 C- 1/2 D- 1/4

viii. One horse power (hp) is defined as _____.

A- 250 ft.lb/s B- 350 ft.lb/s C- 450 ft.lb/s D- 550 ft.lb/s

ix. The energy stored in the sling shot is _____.

A- Gravitational P.E B- Chemical P.E C- Elastic P.E D- Electrical P.E

x. The unit of strain is _____.

A- $Kg\ m^{-3}$ B- Pa C- Nm^{-2} D- None

xi. 10^{-9} stands for prefix _____.

A- Atto B- Pico C- Nano D- Femto

xii. 0.5mm in units of meter is _____.

A- 0.0005m B- 5×10^{-3}m C- $5x10^{-2}$m D- $5x10^{3}$m

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Note: Time allowed 2:45 hours

SECTION – B **Marks: 32**

Q2: Answer any EIGHT parts. Each part caries equal marks.

i. Describe four branches of Physics.

ii. Separate base physical quantities and derived from the following:
Temperature, Volume, Time, Density, Length, Speed, Current, Energy

iii. Does a speedometer measure a car's speed or velocity?

iv. Differentiate between displacement and distance.

v. Define force and its unit.

vi. Why does a boatman tie his boat to a piller before allowing the passengers to step on the river bank?

vii. Can a single force applied to a body change both its translational and rotational motion? Explain.

viii. Why lighter and heavier objects fall at the same rate towards the earth?

ix. Can a centripetal force ever do work on an object? Explain.

x. Which material is more elastic, steel or rubber and why?

xi. How much heat is required to increase the temperature of 0.5Kg of water (with specific heat capacity of 4190 $Jkg^{-1}k^{-1}$) from 10°C to 65°C?

SECTION – C **Marks: 21**

Note: Attempt any THREE of the following. All questions carry equal marks.

Q3: a) State and explain the terms Speed, Velocity and Acceleration (4)

b) A motorcyclist starts from rest and moves with uniform acceleration of 1.9 m/s^2 for 12s. Find the (i) Velocity (ii) Distance covered (3)

Q4: a) What is centripetal force? Explain how centripetal force is used in banking of roads and centrifugation. (4)

b) What is couple? Explain with example. (3)

Q5: a) How the value of 'g' varies with altitude? (3)

b) What is the free fall acceleration at the surface of the sun? As mass of sun is 1.99×10^{30} kg and having radius of 6.96×10^{8}m. (4)

Q6: a) What is meant by linear thermal expansion and volume thermal expansion of solids? (4)

b) The volume of a brass ball is 800 cm^3 at 20°C. Find out the new volume of the ball if the temperature is raised to 52°C. The coefficient of volumetric expansion of brass is 57×10^{-6} K^{-1}. (3)