

PR IX (A-I-AP2) 26
PHYSICS (New Course)
9th (Fresh/Reappear)

۱۔ ہر سوال کے سامنے چار دائرے دیئے گئے ہیں، صرف صحیح جواب والا دائرہ بھر دیں۔
۲۔ دائروں کو شیئر (بھرنے) کے لیے نیلے یا کالے رنگ کا مارکر استعمال کریں۔
۳۔ جواب میں ایک سے زائد دائرے بھرنے سے جواب غلط تصور ہوگا۔

Time: 20 Minutes

SECTION-A

Marks: 12

Q1: Choose the correct option i.e, A,B,C or D?

- The ratio of the gravitational forces exerted by two bodies of masses 10 kg and 20 kg on each other is.
☐ 1:2 ☐ 2:1 ☒ 1:1 ☐ 1:4
- A person holds a heavy box of weight 500 N stationary on his head for 10 minutes. The work done by him is
☐ Positive ☐ Negative ☐ Positive and maximum ☒ Zero
- The power of a machine doing 6000 J of work in 3 s is
☐ 1kw ☒ 2kw ☐ 3 kw ☐ 4 kw
- The breathing difficulties faced by a person at high altitude is due to:
☒ Low atmospheric pressure ☐ High atmospheric pressure
☐ Moderate atmospheric pressure ☐ Zero atmospheric pressure
- Identify the commonly used thermometric property in mercury thermometer:
☐ Electrical resistance ☒ Thermal expansion
☐ Gas pressure ☐ Electromotive force
- Woolen clothes are used to keep us warm in winter because:
☐ Air is a good conductor of heat
☐ Wool is a good conductor
☒ Both wool and air are bad conductors of heat
☐ Air is a good conductor but wool is a bad conductor
- The number 360000 can be written in scientific notation as
☐ 36×10^5 ☐ 3.6×10^6 ☐ 3.6×10^{-4} ☒ 3.6×10^5
- The speed time graph is a straight line parallel to time axis. This shows that the object is
☐ Stationary ☒ Moving with uniform velocity
☐ Moving with variable velocity
☐ Moving with uniform acceleration
- A net force of 100N produces an acceleration of 2ms^{-2} in a body. The mass of the body in kg is
☐ 2 ☐ 5 ☒ 50 ☐ 226
- A body resists change in its speed and direction of motion due to the

property called:

- ☐ Acceleration ☐ Weight ☒ Inertia ☐ Force
11. The second condition of equilibrium ensures no change in
☐ Translational motion ☒ Rotational motion
☐ Vibrational motion ☐ Both rotational & vibrational motion
12. A force of 100 N is applied perpendicularly at the end of a 0.1 m long wrench. The torque produced is
☐ 5Nm ☒ 10Nm ☐ 15Nm ☐ 20Nm

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Note: Time allowed for Section-B & Section-C is 2:40 hours.

SECTION-B

Marks: 32

Q2: Attempt any NINE parts. Each part carries FOUR marks.

Q1: Define the terms physical quantity, unit, base units and derived units.

Q2: Differentiate between speed and velocity with suitable example. State the condition at which speed and magnitude of velocity are equal.

Q3: A woman of mass 60 kg runs on a circular track of radius 0.5 m at a speed of 8 ms. What is the magnitude of centripetal force acting on her?

Q4: State Newton's second law of motion and give one example. Express it in mathematical form.

Q5: Define torque and write its unit. How is torque different from force? What is the effect of moment arm on the magnitude of torque?

Q6: Explain static and dynamic equilibrium with clear examples of each type?

Q7: What is satellite? Elaborate the role of gravitational force in the motion of artificial satellite orbiting the earth.

Q8: Define potential energy. Prove that potential energy of a body of mass m at height h from earth's surface is given by $E_p = mgh$.

Q9: An electric bulb provides 60J of light energy when 300 J electrical energy is supplied to it. Explain why is the bulb not able to convert all of the input energy into useful output?

Q10: Define atmospheric pressure. How does change in atmospheric pressure affects weather condition?

Q11: What is convection of heat? Write three practical applications of convection of heat.

SECTION-C

Marks: 24

Note: Attempt any THREE questions. All questions carry equal marks.

Q12: (a) Assuming uniform acceleration, derive the equation of motion $2as = v^2 - u^2$ using graphical analysis of motion. 4

(b) A cricket ball is thrown vertically upward with a velocity of 5 ms. It decelerates uniformly at 10ms. Neglecting air resistance, how

much time will it take to reach zero velocity? 3

Q13: (a) State Newton's law of universal gravitation and express it mathematically. Is this law consistent with Newton's third law of motion? Comment. 4

(b) Two uniform spheres, each having mass of 80 kg exert a gravitational force of $8 \times 10^{-7} \text{ N}$ on each other. Calculate the separation between their centers. 3

Q14: (a) State Pascal law. Explain the working of hydraulic lift based on Pascal law. 4

(b) Define the terms stress, strain and Young modulus. 3

Q15: (a) Explain volumetric thermal expansion of solids. How is it different from linear thermal expansion? 4

(b) Define heat capacity, heat of fusion and heat of vaporization. 3

