

20-11-2023

Standard 11

Time: 1.30 Hours

PHYSICS

Marks: 35

I. Choose the correct answer.

10×1=10

- If the masses of the Earth and Sun suddenly double, the gravitational force between them will
 - remains the same
 - increase 2 times
 - increase 4 times
 - decrease 2 times
- If the mass and radius of the Earth are both doubled, then the acceleration due to gravity 'g'
 - remains same
 - $g/2$
 - $2g$
 - $4g$
- Two particles of equal mass go round a circle of radius R under the action of their mutual gravitational attraction, then the speed of each particle is
 - $\frac{1}{2R} \sqrt{\frac{1}{Gm}}$
 - $\sqrt{\frac{Gm}{2R}}$
 - $\frac{1}{2} \sqrt{\frac{Gm}{R}}$
 - $\sqrt{\frac{4Gm}{R}}$
- The Young's modulus for a perfect rigid body is
 - 0
 - 1
 - 0.5
 - infinity
- If a wire is stretched to double of its original length, then the strain in the wire is
 - 1
 - 2
 - 3
 - 4
- In a horizontal pipe of non-Uniform cross section, water flows with a velocity of 1 ms^{-1} at a point where the diameter of the pipe is 20 cm. The velocity of water 1.5 ms^{-1} at a point where the diameter of the pipe is (in cm)
 - 8
 - 16
 - 24
 - 32
- The dimension of sphere of influence of molecular
 - 1 \AA^0
 - 10 \AA^0
 - 100 \AA^0
 - 0.1 \AA^0
- The graph between volume and temperature in Charle's law is
 - an ellipse
 - a circle
 - a straight line
 - a parabola
- When a cycle tyre suddenly bursts, the air inside the tyre expands. This process is
 - isothermal
 - adiabatic
 - isobaric
 - isochoric
- When you exercise in the morning by considering your body as thermodynamic system, which of the following is true?
 - $\Delta U > 0, W > 0$
 - $\Delta U < 0, W > 0$
 - $\Delta U < 0, W < 0$
 - $\Delta U = 0, W > 0$

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II. Answer any three from the following questions.

3×2=6

Question No: 14 is compulsory.

- 11) State - Universal law of gravitation
- 12) Why do we have seasons on Earth?
- 13) State Hooke's Law
- 14) Which is more elastic? Rubber or Steel? - Reason
- 15) State - Vien's displacement law

III. Answer any three questions.

3×3=9

Question No: 20 is compulsory.

- 16) State - Kepler's law of planetary motion.
- 17) Distinguish between turbulent flow and steam line flow.
- 18) Write the application of viscosity.
- 19) State and Explain Newton's law of cooling
- 20) Two pistons of a hydraulic lift have diameters of 60cm and 5cm. What is the force exerted by the larger piston when 50 N is placed on the smaller piston?

IV. Answer in detail.

- 21) Explain Escape Speed.

(OR)

State and Explain Bernouli's theorem.

- 22) Explain the Variation of G with depth.

(OR)

Write a note on

- (i) Charle's Law
- (ii) Specific heat capacity
- (iii) Linear Expansion.

SIVAKUMAR.M,

2×5=10

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