Ts11P   Tenkasi District   ⬭⬭⬭⬭⬭⬭

Common Second Mid Term Test - 2024

26-11-2024   **Standard 11**

Time: 1.30 Hrs.   **PHYSICS**   Marks: 35

Part - A

Choose the correct answer: **10×1=10**

1) In an isochoric process, we have
   a) W = 0   b) Q = 0   c) ΔV = 0   d) ΔT = 0

2) In hot summer after a bath, the body's
   a) Internal energy decreases
   b) Internal energy increases
   c) Heat decreases
   d) No change in internal energy and heat

3) When an uniform rod is heated, which of the following quantity of the rod will increase
   a) mass   b) weight
   c) centre of mass   d) moment of intertia

4) A gas expands from volume $1m^3$ to $2m^3$ at constant atmospheric pressure. Then the work done by the gas is
   a) 101 J   b) 101 KJ   c) 10 KJ   d) 101 MJ

5) If a wire is stretched to double of its original length, then the strain in the wire is
   a) 1   b) 2   c) 3   d) 4

6) Which of the following is not a scalar?
   a) Viscosity   b) Surface Tension
   c) Pressure   d) Stress

7) The wettability of a surface by a liquid depends primarily on
   a) Viscosity   b) Surface Tension
   c) Density   d) Angle of contact between the surface and the liquid

8) At which temperature, the surface tension of water becomes zero.
   a) 374°C   b) 374K   c) 273°C   d) 273K

9) The relation between potential and kinetic energy of an orbiting sattelite is
   a) V = +KE   b) V = −KE   c) V = −2KE   d) V = +2KE

10) If the acceleration due to gravity becomes a times its original value then escape speed
    a) remains same   b) 2 times of original value
    c) becomes halved   d) 4 times of original value

Part - B

Answer any 3 questions. Q.No. 15 is compulsory: **3×2=6**

11) Define escape velocity.

12) A metallic cube of side 100 cm is subjected to a uniform force acting normal to the whole surface of the cube. The pressure is 10^6 Pascal. If the volume changes by 1.5×10^{-5} m^3, calculate the bulk modulus of the material.

13) State the law of floatation.

14) What are extensive variable? Give examples.

15) A refrigerator has cop 3. How much work must be supplied to the refrigerator in order to remove 200J of heat from its interior?

Part - C

Answer any 3 questions. Q.No. 17 is compulsory: 3×3=9

16) What is Reynold's number? Give its significance.

17) Let 2.4×10^{-4} J of work is done to increase the area of a film of soap bupple from 50 cm^2 to 100 cm^2. Calculate the value of surface tension of soap solution.

18) What is thermal radiation? Give example.

19) During a cyclic process, a heat engine absorbs 500J of heat from a hot reservoir, does work and ejects an amount of heat 300J into the surroundings (cold reservoir). Calculate the efficiency of the heat engine.

20) What is meant by thermo dynamic equilibrium?   SIVAKUMAR·M
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Part - D   Vallam-627809
Answer all the questions: Tenkasi Dist,   2×5=10

21) a) Explain different types of modulus of elasticity.

                              (OR)

    b) Explain in detail the Eratosthenes method of finding the radius of earth.

22) a) State and prove Bernoulli's theorem for a flow of incompressible, non-viscous, and streamlined flow of fluid.

                              (OR)

    b) Derive Mayer's relation for an ideal gas.