

General Instructions:

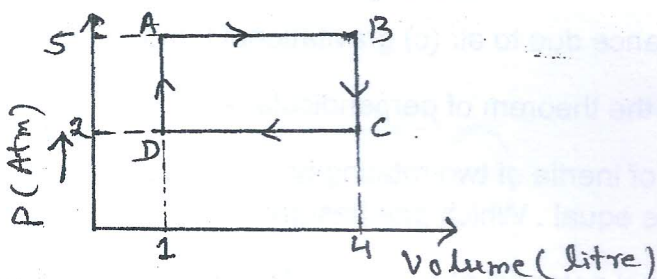
- All questions are compulsory.
- Question numbers 1 to 5 are very short answer questions, carrying 1 mark each.
- Question numbers 6 to 10 are short answer questions, carrying 2 marks each.
- Question numbers 11 to 22 are short answer questions, carrying 3 marks each.
- Question number 23 is a value based question carrying 4 marks.
- Question numbers 24 to 26 are long answer questions, carrying 5 marks each.
- Use log tables, if necessary. Use of calculators is not permitted.

Q1. What is physics? Which of the fundamental forces are of $1/r^2$ type?

Q2. A rain drop of radius (r) falls in air with terminal velocity (v) . What is the terminal velocity of a rain drop of radius (2r) ?

Q3. The absolute temperature of the gas is increased three times . What will be the increased in root mean square velocity of the gas molecules ?

Q4. One mole of an ideal gas undergoes a cyclic change ABCD. From the given diagram calculate the net work done in the process .



Q5. What is the basic condition for the motion of a particle to be simple harmonic motion ?

Q6 Write the dimension of the a / b in the relation $F = a \sqrt{x} + b t^2$ where F is force , x is distance & t is time .

Q7. Define uniform velocity of an object moving along a straight line. What will be the shapes of position time and velocity time graphs of such motion?

Q8. Prove that the work done by a constant force in displacing a body through a certain distance measures the change in the kinetic energy of the body ..

