Government General Degree College, Chapra

Internal Assessment- 3rd Semester, 2020-21

Physics- General

Paper: PHY-G-CC-T-03

Total Marks: 15 Time: 40 minutes

Answer any three questions only:

1. State the principal of equipartition of energy. Define degrees of freedom. For a diatomic gas, how many transitional degrees of freedom are there? What is Boyel temperature? 2+2+1
2. Prove that the ratio of two specific heats of a gas is $\gamma = 1 + \frac{2}{n}$, where n is the number of degrees of freedom. Explain, how water remains under ice slab in polar region. 3+2
3. What is meant by internal energy of a gas? Is this a state function? Under what conditions a process will be reversible? When will the efficiency of Carnot Engine be 100%? 1+ 1+1+2
4. Define entropy. What is its physical significance? A Carnot's engine works between two sources at 127 ^{O}C and 27 ^{O}C. In a complete cycle it rejects 1260 Joule of heat. How much work is obtained in complete cycle? 1+1+3
5. Define average velocity and r.m.s velocity of gas molecules. Keeping pressure unchanged, at what temperature the r.m.s. speed of nitrogen will be double of its r.m.s. speed at N.T.P.? 2+3