JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2023

MSC-I Semester (Biotechnology)

COURSE CODE(CREDITS):20MS1PH111 (2)

MAX. MARKS: 15

COURSE NAME: Basics of Chemistry and Physics

COURSE INSTRUCTORS: SKK

MAX. TIME: 1 Hour

Note: (a) All questions are compulsory and carry equal marks.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c).For calculations, scientific calculator (on cell phone also) is allowed

1. Using the Graphical Method, Derive the Laws of Motion. How these laws will change for constant velocity and constant acceleration

2. What are thermodynamic potentials? Why only two thermodynamic variables are used to determine a system.

3. Using the second law of thermodynamics, explain the following processes (a) isothermal process (b) adiabatic process (c) isobaric process

4. A 100 kW engine is operated between 217 to 17 degree centigrade, calculate (a) amount of heat absorbed (b) amount of heat rejected (c) efficiency of engine

5. Calculate the increase in entropy when 1 gram of ice at -10 degree centigrade is converted into steam at 100 degree centigrade.(specific heat of ice = 0.5, latent heat of ice = 80 cal/gram, latent heat of steam = 540 cal/gram)