B.Sc 1st Sem (CBCS) Sessional Exam, 2021

Sub: Physics (Honours) Paper: PHY-HC-1026

Mechanics

Time: 1 hour Full Marks: 20

1. Answer any five from the following questions : (1×5 = 5)

a) What do you mean by Elastic Limit?

b) Write the dimension of Young's Modulus.

c) What is Poisson's Ratio?

d) In which frame of reference Gallilean transformation is applicable?

e) What is the angle of projection of a projectile to have a maximum range?

f) If $\vec{F} = (4\hat{i} + 2\hat{j})$ N and $\vec{r} = (\hat{i} - 2\hat{j})$m then what is the work done by the force?

2. Answer any three from the following questions : (5×3 = 15)

a) Write down Gallilean transformation equations and establis whether velocity and acceleration is variant or invariant under Gallilean transformation.

b) A projectile is fired with a velocity v_0 moving at an angle θ with horizontal. Prove that the projectile follows a parabolic path.

c) Define Centre of mass. Show that the center of mass of a system of particles moves as if the resultant external force were applied at this point.