

Sessional exam 2022
Goalpara College
Sub: Physics
PHY-HG/RC-1016

Time: 1hr 15 Minutes

Marks: 30

1. Show that the vectors $(2\mathbf{i}-3\mathbf{j}+5\mathbf{k})$ and $(-2\mathbf{i}+2\mathbf{j}+2\mathbf{k})$ are at right angle to each other. 6

OR

Prove that $\frac{d}{dt}(\vec{A} \times \vec{B}) = \left(\frac{d\vec{A}}{dt}\right) \times \vec{B} + \vec{A} \times \left(\frac{d\vec{B}}{dt}\right)$ 6

2. State Postulates of Einstein's theory of relativity. Explain Twin Paradox. 2+2=4
3. State Lorentz transformation Equations. 3
4. Derive the expression for velocity of rocket. 5
5. Define conservative and non-conservative forces. 3
6. State the law of conservation of angular momentum. Show that for a system of particle the law of conservation of angular momentum is valid. 2+7