Electrical Engineering Physics 1   **Assignment 1**   Semester 1 Year 2021
Date: 31 August 2021   **Electrical Engineering Physics 1**   Assignment 1
Semester 1 Year 2021   Total Mark: **28**

Instructions:

- **Work in groups of 5 in solving the following problems.**
- **Submit one script or document which will represents all of you.**
- **Copying from another group or anywhere is NOT allowed.**
- **Show all workings in your answers.**
- **Write tidily and clearly.**
- **Furnish all the details of group members in your scripts (Surname & Initial(s), student number, and each member must sign next to his or her details).**

Question 1

1. Two blocks of masses m_1 and m_2, are connected to each other and to a central post by cords as shown in fig. (1) below. They rotate about the post at a frequency f at distances r_1 and r_2 from the post.
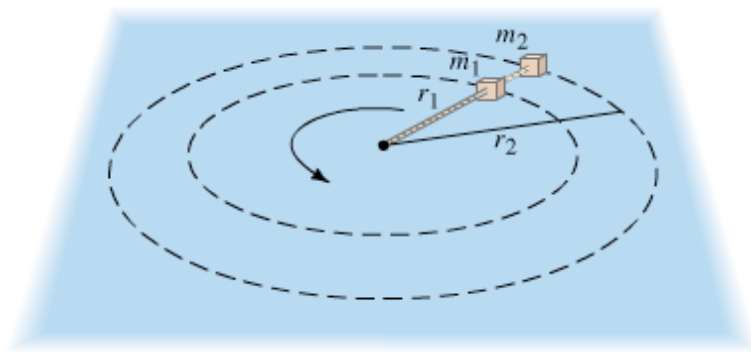

Figure 1: Two masses connected by a cord.

1.1 Derive an algebraic expression for the tension in each segment of the cord.   (9)
1.2 Derive an algebraic expression for the resultants force on m_1 and m_2 separately.   (8)

Question 2

2. In a physics lab, a cube slides down a frictionless incline as shown in fig. (2), and elastically strikes another cube at the bottom that is only one-half its mass. If the incline is 30 cm high and the table is 90 cm off the floor, where does each cube land?   (11)
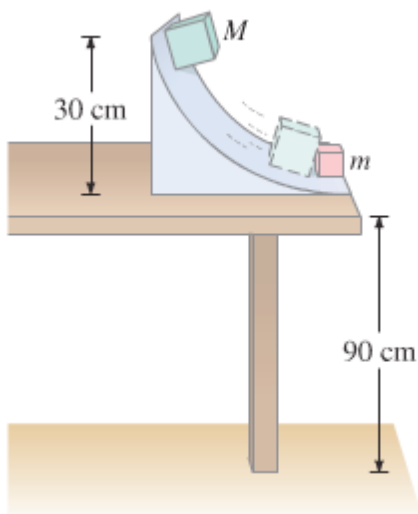

Figure 2: A cube sliding down an incline.