# YEAR 13 A/ B –PHYSICS

**WEEK 5 (27th Sept to 1st October) 3** lessons for both batches

**Work sent to the students through:** Google classroom / Zoom Learning Platform

**Topic: Circular Motion**

| Date | Class | Lesson | Lesson objectives & Learning outcome | Mode of teaching | |
|---|---|---|---|---|---|
| **28th** Sept<br>Monday<br><br>**29th Sept**<br>Tuesday | **13 B**<br><br>**13 A** | 6<br><br>4 | **Learning objectives**:<br>Apply the principles of circular motion to Banked roads and amusement park rides such as a chair plane ride.<br><br>**Learning Outcomes** :<br>Draw the FBD of the car on a banked road and identify how a component of weight /normal reaction force provides for CF<br><br>Deduce the expression for optimum angle<br><br>Use the given worksheet to solve numerical problems.<br><br>Use the equations for centripetal force. | **Zoom** | Teacher uses power point presentation and breakout sessions for students to collaborate and attain the objectives. |
| **28th** Sept<br>Monday | **13 B** | 7 | **Learning objectives**:<br>Differentiate between vertical and horizontal motion | **Zoom** | Teacher uses power point presentation and breakout |

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| **1st October** Thursday | **13 A** | 1 | **Learning Outcomes** :<br>Explain the variation in contact forces on a roller coaster car during a vertical looping.<br>Draw the free body force diagrams on the car at the positions indicated.<br>Identify the force /(s)that provides the centripetal force<br>Formulate an expression for the centripetal force at these positions. | | sessions for students to collaborate and attain the objectives. |
| **30th** Sept<br>Wednesday<br><br>**1st October** Thursday | **13 B**<br><br>**13 A** | 3<br><br>2 | **Learning objectives**:<br>Considering the path of the roller-coaster to be a segment of a circle so that it can be related to the centripetal acceleration, Identify the condition for weightlessness<br>**Learning Outcomes**<br>Realise how fast would you need to be traveling to experience apparent "weightlessness" while passing over the top of a vertical circle<br>Deduce the expression for critical speed | **Zoom** | Teacher uses Google Classroom and breakout sessions in Zoom for students to collaborate and attain the objectives. |

# YEAR 13 A/ B –PHYSICS

**WEEK 5 (27th Sept to 1st Oct) -** 3 lessons for both batches

**Work sent to the students through:** Whatsapp group / Google classroom / Zoom Learning Platform

**Topic: - 7.1 - Electric fields.**
**7.2 - Capacitors**

**Resources:** Student text book, interactive power point, Board works,worksheet file and online videos/animations

| Date | Lesson | Lesson objectives & Learning outcome | Mode of teaching | |
|---|---|---|---|---|
| 28th Sept Monday **- 13 A**<br><br>29th Sept Tuesday **- 13 B** | 1<br><br>6 | **L.O –** Demonstrates how Millikan's oil drop experiment is used to determine the charge of an electron.<br><br>**Learning outcomes-**<br>• Describe the experimental setup which Robert Millikan used to determine the charge on an electron.<br>• Explain how different areas of Physics can be brought together in one experiment to solve a problem. | **Zoom** | Teacher uses power point presentation to explain the exptal setup and concepts and guide students through the process.<br><br>AFL on electric fields – 10 mks |
| 28th Sept Monday **- 13 A**<br><br>1st Oct Thursday **- 13 B** | 2<br><br>3 | **L.O –** Define capacitance and the farad as applied to parallel plate capacitors. Investigate the relationship between *Q* and *V* for a capacitor in order to define capacitance and the farad.<br><br>**Learning outcomes-**<br>• Describe how capacitors can be used in a circuit to store charge.<br>• Use the equation for capacitance C= Q/V<br>• Plot a graph of charge against p.d. and evaluate the gradient to define it as capacitance. | **Zoom** | Teacher uses boardworks & power point presentation to explain the concepts and guide students to solve problems. |
| 29th Sept Tuesday **- 13 A**<br><br>1st Oct Thursday **- 13 B** | 5<br><br>4 | **L.O –** Use the expression W = ½ QV for the energy stored by a capacitor, derive the expression from the area under a graph of charge against p.d stored, and derive and use related expressions, $W = ½ CV^2$ and $W = ½Q^2/C$<br><br>**Learning outcomes-**<br>• Use the expression W = ½ QV and $W = ½ CV^2$ for the energy stored by a capacitor<br>• Predict the graph of charge against p.d and hence determine the area under a graph as equal to energy stored by a capacitor<br>• Use the equations for energy stored on a capacitor. | **Zoom** | Teacher uses boardworks & power point presentation to explain the concepts and guide students to solve problems from worksheet file. |

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