

UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA

Monthly Test – 2

Date of Exam.: 19.10.2024

1st Semester – 2024(Winter)

TH2 : Applied Physics I (Common)

Full Mark: 20

Time: 1 hour

- 1) Answer any FIVE questions [2 × 5 =10]
- Differentiate between scalar and vector quantity.
 - State and explain triangle law of vector addition.
 - Define unit vector and write its mathematical expression.
 - Write any four types of vectors.
 - Differentiate between scalar product and vector product.
 - State and explain impulse-momentum theorem.
 - Differentiate between centripetal and centrifugal force.
- 2) Answer any TWO questions [5 × 2 =10]
- Write down the application of centripetal and centrifugal force on a banked road .
 - Derive the relation between
 - linear velocity and angular velocity
 - linear acceleration and angular acceleration.
 - State and explain Newton's laws of motion.
 - Consider two vectors **A** and **B** such that $\mathbf{A}=2\mathbf{i} + 3\mathbf{j}$ and $\mathbf{B}=4\mathbf{i} + 5\mathbf{j}$ where **i** and **j** are unit vectors. Find the scalar and vector product of **A** and **B** vectors.

