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Reg. No.:

Name:

University of Kerala
First Semester FYUGP Degree Examination, December 2025
Discipline Specific Core Course
PHYSICS
UK1DSCPHY103 INTRODUCTION TO MECHANICS AND ENERGY RESOURCES
Academic Level: 100-199
2024 Admission

Time: 1 Hour 30 Minutes**Max. Marks: 42**

Part A.

6 Marks. Time: 6 Minutes. (Cognitive Level: Remember/Understand) Objective
Type. 1 Mark Each. Answer All Questions

Qn. No.	Question	Cognitive Level	Course Outcome (CO)
1.	Define a vector quantity	Remember	1
2.	Define solar energy	Remember	3
3.	Explain principle of superposition in gravitation	Understand	2
4.	Describe the major drawbacks of solar energy	Understand	3
5.	Explain torque	Understand	4
6.	Restate parallel axis theorem	Understand	4

Part B.

8 Marks. Time: 24 Minutes. (Cognitive Level: Understand/Apply) Short
Answer. 2 Marks Each. Answer All Questions

Qn. No.	Question	Cognitive Level	Course Outcome (CO)
7.	Explain angular velocity and angular acceleration	Understand	4
8.	Describe any four advantages of renewable energy	Understand	3
9.	Summarize the base quantities in the international system of units	Understand	1
10.	Discuss principle of superposition for gravitation	Understand	2

Part C.

28 Marks. Time: 60 Minutes. (Cognitive Level: Apply/Analyse/Evaluate/Create)

Long Answer. 7 marks each. Answer all 4 Questions, choosing among options* within each question.

Qn. No.	Question	Cognitive Level	Course Outcome (CO)
11.	A. Discuss about the following conventional energy sources – fossil fuels, agriculture and organic waste and water power OR B. Discuss any two applications of solar energy	Understand	3
12.	A. Restate and explain parallel axes theorem. Describe the proof of the theorem. OR B. Explain kinetic energy of rotation and torque	Understand	4
13.	A. Illustrate the cross product of two vectors and present the properties of cross product. OR B. Illustrate the resolution of a vector and unit vectors	Apply	1
14.	A. Explain Kepler's laws of motion OR B. Explain gravitational potential energy, deriving an equation for it and interpret the path independence of gravitational force	Understand	2