

ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD

(Department of Science Education)

WARNING

1. PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM THE AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.
2. SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN "AIOU PLAGIARISM POLICY".

Note: Before attempting assignments, please read the following instructions:

1. All questions are compulsory.
2. Read each question carefully before writing an answer.
3. Read the relevant units of the study guide for writing the answer to a question and properly arrange the points for the answer.
4. You may take help from other resources such as books, websites, and other online resources for writing the answer to a question.
5. You must mention the resources used for writing an answer at the end of the answer.

Course: Physics I (6441)
Level: BEd (2.5 & 4 years)

Semester: Spring, 2026
Total Marks 100
Pass Marks: 40

Assignment No. 1 (Units: 1 - 4)

- Q.1 Explain the concept of the scalar and vector product of two vectors.
Provide examples to explain scalar and vector products. (20)
- Q.2 Describe the divergence and Curl of vector fields with examples. (20)
- Q.3 Explain the concepts of line and surface integrals with examples. (20)
- Q.4 State and explain Newton's Laws of motion and discuss their applications in daily life. (20)
- Q.5 a) Prove the relationship between work and Mechanical Energy of a system.
b) A car is moving at 100km/h. If the mass of the car is 950 kg, what is the kinetic energy? (10+10)

Assignment No. 2
Unit (5-9)

- Q.1 a) Prove that the vector sum of momenta of individual particles is equal to the mass of the whole system times the velocity of the center of Mass (CoM).
b) State and prove the Law of Conservation of Linear Momentum.
(10+10)
- Q.2 Explain two-dimensional collisions as an extension of one-dimensional analysis. (20)
- Q.3 Derive a mathematical expression for the calculation of kinetic energy of a rotational body. (20)
- Q.4 Discuss the effect of torque and its relationship with angular momentum. (20)
- Q.5 Explain and derive a formula for the calculation of escape velocity of a body. (20)