

Jashore University of Science and Technology
Department of Physics

Bachelor of Science with Honours in Physics

1st semester of 3rd year, Academic session: 2024–2025

Course no.: PHY 3103

Course title: Quantum Mechanics I

Class test no.: 02

Date: 12 January 2026

Roll:

- 1.** What is the commutator of two operators? Write down the properties of commutation relation.

[3]

- 2.** What is the physical meaning of a non-zero commutator between two operators?

[2]

- 3.** Show that the position and momentum operators do not commute.

[5]

- 4.** What is a Hermitian operator? Write down the properties of Hermitian operator.

[5]

- 5.** Show that the expectation value of a Hermitian operator is real.

[5]

- 6.** Show that the momentum operator is a Hermitian operator.

[5]