

# THE UNIVERSITY OF CHENAB



Department of Physical Sciences  
Master of Philosophy in Physics (MPhil)

**Address:** Adjacent Chenab Riverside, N-5 GT Road Gujrat

**Contact No:** +92- 053 111 243 622,

**Web:** [www.uchenab.edu.pk](http://www.uchenab.edu.pk)

**Email:** [admissions@uchenab.edu.pk](mailto:admissions@uchenab.edu.pk)

Programs Offered by the Department of Physical Sciences	
Degree Name	Degree Details/Eligibility Criteria
<b>Bachelor of Science in Physics</b>	The Bachelor of Sciences in Physics program is of 4-years duration, spread over 8 regular semesters, and consisting of 133 credit hours after completing twelve years of higher secondary school certificate (FSc), ICS. At least, 45% marks in intermediate or equivalent are required for admission in BS Physics.
<b>ADP Physics</b>	The ADP Physics Studies is of two-year duration, spread over 4 regular semesters, and consists of 69 credit hours after completing twelve years of higher secondary school certificate (FSc) or ICS. At least, 45% marks in intermediate or equivalent are required for admission in ADP Physics Studies.
<b>Bachelor of Science in Physics (5th Semester Induction)</b>	1. Graduates with a minimum CGPA of 2.0 out of 4.0 or at least 45% marks in a 2-year associate degree in physics studies (semester system) are eligible to apply for direct admission into the 5th semester of the BS Physics, in accordance with HEC guidelines and the university's admission policy. 2. All other students, including those with an ADP in Physics or other equivalent 14-year degrees (such as B.A./B.Sc.), are required to complete 15 credit hours of deficiency courses in a bridge semester 3. After completing the bridge semester with a minimum CGPA of 2.0, students will join the regular fifth semester of their degree program
<b>Master of Philosophy in Physics</b>	The Department of Physical Sciences will allow admission with 2.0 CGPA and with at least 50% marks in the annual system as a basic minimum criterion for admission in MPhil Physics. Passing university test or GAT with 50% marks and interview is required.



**Sample - Entry Test for Master of Philosophy in Physics**

**Department of Physical Sciences**

**Section I**

**Multiple Choice Questions**

**Physics (10 Questions)**

**All questions are compulsory. Each question has 2 marks.**

**1. Electromagnetic radiation emitted from the nucleus is most likely to be in the form of**

- A) Gamma rays
- B) Microwaves
- C) Visible light
- D) Infrared radiation

**2. The negative muon has properties most similar to which of the following?**

- A) Quark
- B) Boson
- C) Electron
- D) Photon

**3. Which of the following semiconductors are mostly used to construct electronic circuits?**

- A) Silicon
- B) Germanium
- C) Selenium
- D) Tin

**4. Rest mass energy of an electron is**

- A) 1.02 MeV
- B) 0.511 KeV
- C) 0.511 MeV
- D) 2.02 MeV

**5. Quantum effects are important only when observing**

- A) small objects
- B) very large objects
- C) atomic spectra
- D) atomic size objects



**Sample - Entry Test for Master of Philosophy in Physics**

**Department of Physical Sciences**

**6.** Phenomena that cannot be understood with the framework of classical physics is

- A) blackbody radiation
- B) atomic spectra
- C) inertial frame
- D) none of above

**7.** Photoelectric effect is the evidence of

- A) Wave nature of light
- B) Particle nature of light
- C) Dual nature of light
- D) All options are correct

**8.** Which of the following is the SI unit of power

- A) Newton
- B) Watt
- C) Joule
- D) Dyne

**9.** The tendency of an object is measured by its.....

- A). Mass
- B). Speed
- C). Velocity
- D). None of these

**10.** A box with a mass of 2 kg accelerates in a straight line from 4 to 8 m/s due to the application of a force whose duration is 0.5 s. Find the force.

- A) 2N
- B) 4N
- C) 8N
- D) 12N



**Sample - Entry Test for Master of Philosophy in Physics**

**Department of Physical Sciences**

**Section II**

**Solve any three questions. Each question has 10 marks.**

**Q.1** Photons of wavelength 2.17 pm are incident on free electron (a) Find the wavelength of photon that is scattered at 35 degrees from the incident direction (b) do that the same, if scattering angle is 115 degrees.

**Q.2** What must be the width of an infinite well such that a trapped electron in the  $n=3$  state has energy 4.70eV.

**Q.3** A microscope using photons is employed to locate an electron in an atom to within a distance of 12 pm. What is the minimum uncertainty in the momentum of electron located in this way?

**Q.4** The X-rays with  $\lambda = 100 \text{ pm}$  are scattered from a carbon target. Determine the maximum shift in the wavelength  $\Delta\lambda$  of the scattered radiation.

**Q.5** A ruby laser emits light at wavelength 694.4 nm. If a laser pulse is emitted for 12 ps and the energy released per pulse is 150 mJ. What is the length of the pulse and how many photons are in each pulse?