

## M.Sc. Internal Assessment – Quantum Mechanics-II

Internal Assessment (IA) Test for Quantum Mechanics-II PH-CT-406 to be held on 28th July, 2020, 10:30 hrs to 13:30 hrs -- Instructions (Two pages only)

1. Question paper will be available online in Google Classroom and will be sent to your email address at 10:30 hrs of 28<sup>th</sup> July 2020. Mail will be sent through Google Classroom or [du.qmii.2020@gmail.com](mailto:du.qmii.2020@gmail.com).
2. Question paper will be PROBLEM BASED MCQs. Maximum marks of this IA Test is 40. The assignments already submitted will count for 10 marks. (Total marks for IA are 50.)
3. Duration of the Assessment will be 0.5 + 2 + 0.5 hours, i.e., 3 hours in total. The first half hour is given for downloading the paper. The next two hours are given for solving the problems. The last half hour is given for uploading your answer book.
4. The answer book consists of the following: One sheet (called "MCQ answer sheet") indicating the correct answer for each question, followed by "solution sheets" where you have worked out the solution to each problem you have attempted. The solution sheets must be on A4 size paper, maximum two sheets per problem. Further, the pdf file containing the full answer book should be no more than 7MB in size. The answers in the pdf file should be clearly and easily readable (preferably use black or blue ink).
5. Your solution sheets will be evaluated. If it is found that your solution does not lead to the answer you have marked in the MCQ answer sheet, you may get zero marks for that question. Conversely, if your answer in the MCQ answer sheet is incorrect but your solution shows some progress towards solving the problem you will get credit for your work. There will be no negative marking.
6. You must write down the following on top of the first page of the answer book: (a). Name, (b). Roll Number, (c). College Name, (d). Paper ID=PH-CT406, (e). Total number of pages used on the answer book. Page numbers should be written on each page of the answer book.
7. After finishing the paper, scan all the pages (in order) and convert it into **single pdf file**. Some suggestions for Apps for scanning your assignment are Adobe Scan and DocScanner. You may choose other apps also. It is a good idea to try them out in advance. Only pdf files will be accepted (Max. 7MB).
8. You must name the single pdf file as "rollnumber-name.pdf". For example, if your name is Arun Kumar and Roll number is 19025762063 then the file name should be 19025762063-arun.pdf
9. The scanned file has to be emailed to the address [du.qmii.2020@gmail.com](mailto:du.qmii.2020@gmail.com) with the subject header in the format "rollnumber-name". Alternatively, you can drop the file into the Google classroom dropbox as you have been doing for the tutorial assignments.
10. Students will also have the option to do IA online directly in Google Classroom. Then you don't have to send the MCQ answer sheet by email but work directly on the MCQ IA form in Google Classroom and press the "submit" button after filling out the answers in the MCQ IA form. However you still need to upload the scanned copy of the solution sheets (maximum size 6MB) in the space provided in the MCQ IA form in your Google Classroom. In case you fail to upload or attempt MCQ online then you

can always send the MCQ answer sheet + solution sheets on the following email address: [du.qmii.2020@gmail.com](mailto:du.qmii.2020@gmail.com) .or

11. Your scanned file must be uploaded in the dropbox of Google Classroom or reach the above email address [du.qmii.2020@gmail.com](mailto:du.qmii.2020@gmail.com) by 13:30 hrs of 28<sup>th</sup> July 2020. For those opting for the online mode, the MCQ IA form along with uploaded file of solution sheets must be submitted by 13:30 hrs of 28<sup>th</sup> July 2020.
12. You are required to attempt the IA test solely by yourself. In no case are the students allowed to discuss any part of the paper with other students taking the exam or any other person. In case it comes to the notice that unfair means were used then the entire assessment will stand cancelled for those students.
13. The syllabus to study for the IA consists of the following topics
  - 1). Time Independent Perturbation Theory: Non-degenerate and Degenerate, Stark and Zeeman effect
  - 2). Variational Principle
  - 3). Time Dependent Perturbation Theory, Adiabatic and Sudden Approximations
  - 4). Scattering: Born Approximation and Partial Wave AnalysisYour question paper will have choices, for example, you may be expected to answer any four out of six questions.
14. Details of lectures, reading and problem assignments from Jan-June 2020 can be found in the physics website ( <http://physics.du.ac.in>; Courses of Study; Revised Syllabi and Online Teaching Resources). The links for the Google group and classroom are mentioned in the section PH-CT406 Quantum Mechanics II of the Online Teaching Resources on the physics website.
15. For any questions or difficulties regarding the IA test, you may contact the teachers by email. In case you are unable to contact teacher(s) through email, then you may contact them at **+91-9999038549 (Prof. Nivedita Deo), +91-9910124636 (Dr. Ashutosh Bhardwaj), +91-9873153365 (Dr. Shashi Verma) and +91-9999062324 (Dr. Sanjay Kumar Chamoli) by sms or Whatsapp message (no voice calls).**

Enjoy Your Physics.

Best of Luck!  
QMII Team