

Chennai Mathematical Institute

Ph.D.(Physics) IInd Semester Jan-Apr 2020

Quantum Field Theory

Short Questions-I

Jan 27, 2020

Instructions: Answer the following questions briefly. Do not write essays. Two A4 size sheets will be more than adequate. [10]

- [1] What is meant by a picture in quantum mechanics?
- [2] Do we have analogues of pictures in classical mechanics? In some other area of physics?
- [3] Identify special property of the structure of quantum mechanics that makes it possible to have many pictures in quantum mechanics?
- [4] Give examples of pictures in quantum mechanics?
- [5] Is it correct that changing from one picture to another picture is like change of basis in Hilbert space?
- [6] If it is not like changing basis, then how will you describe a change of basis? Explain by means of a few examples.
- [7] Summarize basic relationship between pictures in as few equations as you can.
- [8] Describe all the important pictures frequently used and summarize important equations.

Due Date::Jan 27, 2020