Name : **Roll No:**

University of Hyderabad
School of Physics

M.Sc.-I/IMSc.-III Quantum Mechanics **July 5, 2018**

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Quiz-II

A body moves in a central potential $V(r)$. Check if the statements about its motion given below hold in (i) classical theory (ii) in quantum theory or not.

Complete the following table by writing `TRUE/FALSE` in the second and third columns.

Statement	CM	QM
Complete solution of equations of motion means specifying orbit of the particle.		
The orbit of the body lies in a plane.		
Specifying orbits specifies the state of the body completely.		
The L^2, L_x, L_y, L_z and E are constants of motion.		
The state of the body at any time is completely specified by its position and momentum.		
Specifying by values of L^2, L_z, E specifies the states of the body completely.		
All states of the body must have a definite values of energy, L^2 and all the three components of angular momentum.		
The radial motion is governed by an effective potential.		
There will be states which have can a definite values of energy, L^2, L_z only and do not have precise values of L_x, L_y.		
There exist states of the body which have nonzero uncertainty in energy, $\Delta E \neq 0$.		