4 Fig. 4 shows a block of mass $4m$ kg and a particle of mass m kg connected by a light inextensible string passing over a smooth pulley. The block is on a horizontal table, and the particle hangs freely. The part of the string between the pulley and the block is horizontal. The block slides towards the pulley and the particle descends. In this motion, the friction force between the table and the block is $\frac{1}{2}mg$ N.

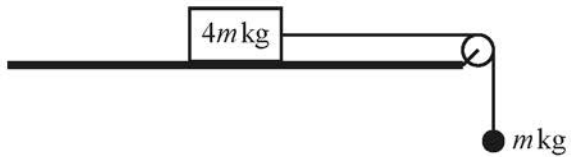

Fig. 4

Find expressions for

- the acceleration of the system,
- the tension in the string. **[4]**