

### **Question**

An elevator machine distributes people to various floors at the JKUAT towers in Nairobi city. The machine waits for students and/or staff to press the floor they wish to go to. Three doors A, B and C alight at different floors of the building.

- (i.) Give the formal definition of the above machine, as a Finite Automaton. **(10 Marks)**
- (ii.) Is the machine deterministic or non-deterministic? Justify your answer **(2 Marks)**
- (iii.) Draw a state transition diagram for the above machine **(8 Marks)**
- (iv.) **Using a programming language of your choice** write a computer program to implement the above machine. Simulate this problem with an appropriate User Interface **(10 Marks)**