



SCHOOL OF INFORMATION TECHNOLOGY AND ENGINEERING

CAT I – B.Tech. - Fall Semester - 2018-19

Course Name: Digital Logic and Microprocessors

Duration: 1.5 hrs

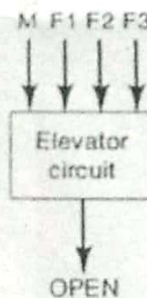
Course Code: ITE1001

Max. Marks : 50

Slot : A2+TA2

Faculty : Dr. Swarna Priya RM, Dr. Aarthi S L, Dr. Praveen Kumar Reddy

1. Design a logic circuit that controls an elevator door in a three-story building. The circuit in figure below has four inputs. M is a logic signal that indicates when the elevator is moving ($M=1$) or stopped ($M=0$). F1, F2, and F3 are floor indicator signals that are normally LOW, and they go HIGH only when the elevator is positioned at the level of that particular floor. For example, when the elevator is lined up level with the second floor, $F2=1$ and $F1=F3=0$. The circuit output is the OPEN signal, which is normally LOW and will go HIGH when the elevator door is to be opened. (10 Marks)



2. Design a circuit for an automobile alarm circuit shown below used to detect certain undesirable conditions. The three switches are used to indicate the status of the door by the driver's seat, the ignition, and the headlights, respectively. Design the logic circuit using a 2*1 multiplexer with these three switches as inputs so that the alarm will be activated whenever either of the following conditions exists: (10 Marks)
- The headlights are on while the ignition is off.
 - The door is open while the ignition is on.

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