ASSEMBLY ASSIGNMENT 1

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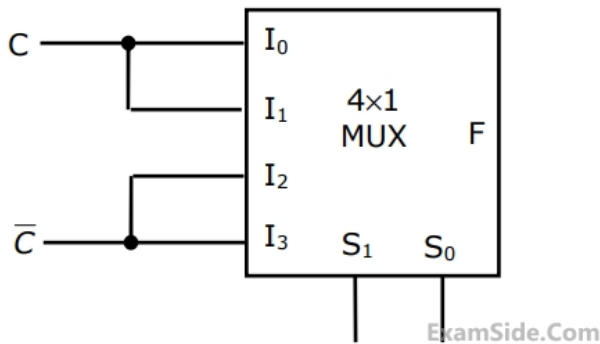
Figure 1: **The logic realised by the circuit shown in figure is**

Contents

1 Introduction

Mutiplexer is a combinational logic circuit designed to switch one of the several inputs lines through a single common output line by the application of a control signal.
The implementation of multiplexer takes three steps
1.To get the truth table of multiplexer
2.To get the Boolean equation using the truth table by using k map.

2 Components

Component	Value	Quantity
Arduino UNO		1
USB cabel		1
USB type C	-	1

Figure-2 Components

2.1 Arduino

The Arduino uno has some ground pins, analog input pins A0-A3 and digital pins D1-D13 that can be used for both input as well as output. It also has two power pins that can generate 3.3V and 5V.In the following exercises, only the ground, 5V and digital pins will be used.

3 Truth Table of 4x1 Multiplexer

The truth table for 4x1 Multiplexer as follows:
Selection lines=A,B

A	C	F
0	0	1
0	1	0
1	0	0
1	1	1

Figure-2 Truth table

BUILDING THE BOOLEAN EQUATION:
By using the above truth table using k map we get the above equation as:
F=A'C+AC'

4 Circuit Diagram

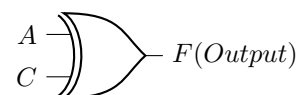Using the above Boolean Equation the circuit diagram is drawn as:

Figure-4 xor operation

5 Hardware

1. Connect Arduino to the android phone and upload the code in to the arduino.Inputs for the selection lines of multiplexer are given inside the code and the output will be ob-

tained at the builtin led pin 13. The builtin led in arduino is the indication of the output of multiplexer.