**SESSION DECEMBER 2022**

**PROGRAM BCA**

**SEMESTER III**

**COURSE CODE &amp; NAME DCA2103, COMPUTER ORGANIZATION**

**SET-I**

**1. Discuss Booth’s multiplication algorithm, trace the steps for multiplying (-7)\*(+3).**

**Ans:** **Working of Booth's Algorithm**

1. Set the Multiplicand and Multiplier binary bits as M and Q, respectively.
2. Initially, we set the AC and Qn + 1 registers value to 0.
3. SC represents the number of Multiplier bits (Q), and it is a sequence counter that is continuously decremented till equal to the number of bits (n) or reached to 0.
4. A Qn represents the last bit of the Q, and the Qn+1 shows the incremented bit of Qn by 1.

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**2. Write a note on the following addressing modes:**

**i) Direct Addressing**

**ii) Indirect Addressing**

**iii) Register Addressing**

**iv) Register Indirect Addressing**

**Ans: (i) Direct Addressing Mode**

Figure 3.4 illustrates the Direct Addressing Mode

• EA = A.

• Address field contains address of operand.

• Effective address (EA) = address field (A).e.g. ADD A

• Add contents

**3. Discuss the organization of main memory.**

**Ans: Organization**

Basic element of semiconductor memory is the memory cell. All semiconductor memory cells have certain properties:

• Have two stable states that represent binary 0 and 1.

• Capable of being written into (at least once), to set the state.

• Capable of

**SET-II**

**4. Explain the process of fetching a word from the memory.**

**Ans: Fetching a word from the memory**

* CPU transfers the address of the required information to MAR from where it is transferred through Address Bus to Memory
* In the same time CPU uses it’s control lines of memory bus to indicate that a read operation is

**5. What is Interrupt driven I/O? Explain its full working through flowchart.**

**Ans:** Using Program-controlled I/O requires continuous involvement of the processor in the I/O activities. It is desirable to avoid wasting processor execution time. An alternative is for the CPU to issue an I/O command to a module and then go on to other work. The I/O module will then interrupt the CPU requesting service when it is ready to exchange data with the CPU. The CPU will then execute

**6. What is synchronous and asynchronous data transfer? Discuss in detail.**

**Ans: Synchronous data transfer** In synchronous data transmission, data is transmitted through a bit-stream, that transmits a group of characters in a single stream. In this type of data transfer, the transmission speed is synchronized at both the sender and receiver with the help of a clock signal, at the time