

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA INTEGRATED– SEMESTER -I EXAMINATION –WINTER-2021

Subject Code: 2618601**Date: 15/03/2022****Subject Name: Fundamental of Computer Organization****Time: 10:30 AM to 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** Do as directed :
- 1) Convert $(123.1)_{10}$ to binary number system. **01**
 - 2) Convert $(345.2)_8$ to hexa decimal number system. **01**
 - 3) Convert $(ABC.1)_{16}$ to octal number system. **01**
 - 4) Perform subtraction using 2' complement system:
 $(0101)_2 - (0011)_2$ **01**
 - 5) What is Sum of Product (SOP) and Product of Sum(POST)? How to convert SOP into POS? **03**
- (b)** Draw and explain basic components of computer system. **07**
- Q.2 (a)** Explain the working of 3 Bit Binary Counter in details. **07**
- (b)** Which gates are known as universal gate? Explain in details. **07**
- OR**
- (b)** Which gates are known as basic gates? Explain all basic gates in details. **07**
- Q.3 (a)** What is RS Flip Flop? Explain in details. **07**
- (b)** What is the use of Full Adder ? How Full Adder is constructed using Half Adder? Explain in details. **07**
- OR**
- Q.3 (a)** Explain addition and subtraction in sign bit representation using 2' complement in binary number system. **07**
- (b)** Why the multiplexer is used in electronic circuit? Explain with proper example. **07**
- Q.4 (a)** Explain static RAM and dynamic RAM in details. **07**
- (b)** What is BUS? Explain synchronous and asynchronous bus in details. **07**
- OR**
- Q.4 (a)** What are Instruction Cycle and Execution Cycle? Explain in details. **07**
- (b)** Explain Direct Addressing and Indirect Addressing techniques with example. **07**
- Q.5 (a)** Explain Bus Interface Unit(BIU) in 8086 microprocessor along with various segment registers. **07**
- (b)** Explain Magnetic Disk Memory in details. **07**
- OR**
- Q.5 (a)** Explain various types of printers in details. **07**
- (b)** Explain SUB, CMP and AND instructions of 8086 Microprocessor in details. **07**
