



**ACE**  
Engineering College  
(with a Difference in Excellence)

An AUTONOMOUS Institution



Question Paper Code:

CS304PC

ACE-R20

**Semester End Examination**  
**II B. Tech- I Semester- March-2022**  
**COMPUTER ORGANIZATION AND ARCHITECTURE**  
**(Common to CSE,CSM,CSD)**

Time: 3 Hours

Max. Marks: 70

H. T. No

*Answer any 5 Questions out of 8 Questions from the following*

Q.No	Question	Marks
1.	Design BUS system (Register to Register through Bus) for 3 registers of length 3-bits each using appropriate switches.	14
2.	Design a Microprogram sequencer circuit for any given micro operation	14
3.	Prepare and explain the flowchart for the execution of an I/O instruction using interrupt cycle.	14
4.	Explain various addressing modes of the Basic Computer CPU with examples.	14
5. a)	Draw the flowchart for Booth multiplication algorithm.	6
b)	Summarize the contents of A, Q registers after performing the multiplication of any two decimal numbers with 5-bit registers using booth algorithm?	8
6. a)	Distinguish between isolated I/O and memory-mapped I/O?	6
b)	With the help of block diagram, explain the working of Associative Memory.	8
7. a)	Discuss the concept of Four-Segment Pipeline with the help of block diagram.	8
b)	How data hazard can be avoided, explain with an example.	6
8. a)	Explain the architecture of 8086 microprocessor with the architecture diagram and label various components.	8
b)	Write an ALP (Assembly Language Program) to add two arrays ( matrices).	6