ADAMAS UNIVERSITY PURSUE EXCELLENCE	**ADAMAS UNIVERSITY** **END-SEMESTER EXAMINATION : MAY 2021** (Academic Session: 2020 – 21)		
Name of the Program:	B.Tech	**Semester:**	IV
Paper Title :	Computer Architecture	**Paper Code:**	ECS43103
Maximum Marks :	40	**Time duration:**	3 Hrs
Total No of questions:	8	**Total No of Pages:**	2
(Any other information for the student may be mentioned here)			

Answer all the Groups

Group A

Answer all the questions of the following $5 \times 1 = 5$

1. a) Among the standard classical I/O devices, Which I/O device generates highest priority of Interrupts? And why?
   b) How many memory operations are required are required to perform an operation on a 3-Address architecture if each operand specifies an indirect memory reference.
   c) State the dependencies between the Computer Organization and Computer Architecture
   d) We have studied various types of addressing modes, which is used for the construction of the machine instruction sequences. What is the standard differences between the addressing modes?
   e) In terms of digital circuit, what is a clock?

GROUP –B

Answer *any three* of the following $3 \times 5 = 15$

2. Explain clearly, the register-indirect, the indexed and the base register with indexed addressing modes. Next, point out the exact difference between the three.

3. Explain the Direct Mapping technique for cache memory; next consider a system with main memory divided into 4096 blocks of 16 words each and cache memory having 128 blocks. Discuss the address specification of the cache memory? Into which cache block will memory block 258 be loaded?

4. Explain with diagram the basic functional blocks of a computer.

5. Explain how PC, IR, MAR, MDR, Control Unit, ALU and general-purpose registers play an important role to complete the execution of a program.

GROUP –C

Answer *any two* of the following $2 \times 10 = 20$

6. State the algorithm designed to overcome the disadvantage of normal multiplication algorithm along with the flowchart. Represent each step of the proposed algorithm for multiplying 7 and (-3). [2+3+2+3=10]

7. Discuss the properties of memory hierarchy with diagram? Write a short note on Indexed & Indirect memory addressing scheme.

8. Generate the3-Address 2-Address, 1-Address and Zero address Instruction sequence for the following expression $X = \frac{(a+b)}{4} + \frac{(c+5)\times d}{2}$
