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Shree Damodar College of Commerce & Economics, Margao-Goa
FY BCA, Semester-I,   Supplementary Examination June 2023
Computer Organization and Architecture (CAC-102)

Duration: 2 Hours   **Max. Marks:60**

Instructions:

1) All Questions are compulsory.
2) Start each question on a fresh page
3) Figures to the right indicate Full Marks.

Q.1.A) State TRUE or FALSE for the following statements.   (5x1=05)

i) Computer Architecture refers to those attributes of a system that have a direct impact on the logical execution of a program.

ii) In Direct Addressing Mode the actual operand is given in the instruction itself.

iii) The Bus Request (BR) input is used by the DMA controller to request the CPU to get the control of buses.

iv) Read Only Memory requires continuous power source to maintain the bit values in memory.

v) Instruction Register (IR) holds the last instruction fetched.

Q.1.B) Define the purpose of the following in not more than 20 words each.   (5x1=05)

i) Static RAM (SRAM)

ii) Simple Batch Operating System

iii) Addressing Mode

iv) Control and Status Registers

v) Interconnection Structures

Q.2. Answer the following: **10 Marks**

A) List and explain any two classes of Interrupts.   (2)

B) Discuss the Rules for Micro-Operations grouping.   (3)

C) Explain Register Addressing, Register Indirect Addressing and Displacement Addressing Modes in detail with the help of neat diagrams.   (5)

Q.3. Answer the following: **10 Marks**

A) Illustrate Instruction Pipelining with the help of a neat diagram.   (2)

B) List and explain any three I/O module functions.   (3)

C) Explain Instruction Cycle with the help of a neat diagram.   (5)

Q.4.   Answer the following: 10 Marks
A) Perform the following conversions.   (2)

| i) Decimal to Binary | $(188)_{10}$ |
| ii) Hexadecimal to decimal | $(1C4)_{16}$ |

B) Discuss the characteristics of any three RAID Levels.   (3)

C) Explain Five-State Process model with the help of a neat diagram.   (5)

Q.5.   Answer the following.   10 Marks

A) List and Explain the various categories of External/Peripheral devices with the help of example.   (2)

B) Describe Paging, Swapping and Partitioning with respect to memory management.   (3)

C) Explain the Disk Performance parameters in detail.   (5)

Q.6.   Answer the following.   10 Marks

A) Represent the given Decimal number in 2's Complement form: $(28)_{10}$ (2)

B) Discuss any three Replacement algorithms with respect to cache memory.   (3)

C) Explain Traditional and High Performance Bus architecture with the help of diagram.   (5)