

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/  
COMMERCIAL PRACTICE, APRIL-2022**

**COMPUTER ARCHITECTURE**

[Maximum marks: 100]

(Time: 3 Hours)

**PART – A**

**Maximum marks : 10**

I (Answer *all* the questions in one or two sentences. Each question carries 2 marks)

1. Define computer architecture.
2. List the four functions of the computer.
3. Write the expansions of (a) RAID (b) CD (c)DVD (d) HD
4. List the operations of a processor.
5. In one or two sentences write about the micro operations. (5 x 2 = 10)

**PART – B**

**Maximum marks : 30**

II (Answer any *five* of the following questions. Each question carries 6 marks)

1. List the four structural components of the computer and explain each.
2. Write about the three functional group of data lines of the computer with sketch.
3. Define a cell in the semiconductor memory and with a neat diagram explain its operations. Also write the properties shared by the memory cells.
4. What are the benefits of using glass substrate in a hard disk over the aluminium substrate.
5. Explain the functions of I/O module and also draw the general structure of the module.
6. Write the micro operations performed in the Fetch, Indirect and Interrupt cycles.
7. With a neat block diagram explain the control unit . Also write about the three step process which leads to the characterization of the control unit. (5 x 6= 30)

**PART – C**

**Maximum marks : 60**

(Answer one full question from each unit.. Each full question carries 15 marks)

**UNIT –I**

- III. (a) Write about the three key components of the Von Neumam architecture. (7)  
(b) Compare DRAM and SRAM. (8)

**OR**

- IV.(a) Write about the characteristics of the memory system. (8)  
(b) Explain the key characteristics of the cache design. (7)

**UNIT-II**

- V. (a) Write about the physical characteristics of the hard disk. (7)  
(b) With the neat diagram explain the read and write mechanism in the hard disk. (8)

**OR**

- VI. (a) Draw the format of a sector in an optical disk and explain each field. (8)  
(b) Compare various raid levels. (7)

**UNIT-III**

- VII. (a) Name the generally available visible registers of the microprocessor and write the purpose of each register. (8)  
(b) Explain the instruction cycle in detail. (7)

**OR**

- VIII. Write in detail about the instruction pipe lining. (15)

**UNIT-IV**

- IX. Write about the Hardware control unit and micro programmed control unit. (15)

**OR**

- X. Explain in detail Flynn’s classification of multiple processor organization with neat diagram. (15)

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