

P-863

Total Pages : 4

Roll No.

MIT(CS)-404

Computer Organization and Architecture

M.Sc. Cyber Security (MSCCS)

4th Semester Examination, 2023 (June)

Time : 2 Hours]

[Max. Marks : 70

Note : This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein. Candidates should limit their answer to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

SECTION–A

(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Nineteen (19) marks each. Learners are required to answer any Two (02) questions only.

(2×19=38)

1. Discuss the following : (Marks are mentioned against each question)
 - (a) What is a mapping function? Explain various types of mapping function for cache memory with diagram and examples. (10)
 - (b) Discuss Binary Multiplier in detail with the working, circuit diagram, block diagram etc. (9)

2. Discuss the following in detail : (Marks are mentioned against each question)
 - (a) Discuss Address translation with diagram and example. (7)
 - (b) Discuss Inverted page table structures with diagram and example. (7)
 - (c) Discuss various kinds of Machine Instructions in details with examples of each. (5)

3. Discuss the following in detail along with the examples and diagrams of each: (Marks are mentioned against each question)
 - (a) Immediate Addressing. (3)
 - (b) Direct Addressing. (3)
 - (c) Indirect Addressing. (3)
 - (d) Register Addressing. (3)
 - (e) Register Indirect Addressing. (3)

- (f) Displacement Addressing. (3)
- (g) Stack Addressing. (1)

4. Discuss the following in detail along with the examples and diagrams of each: (4.75 Marks each, $4.75 \times 4 = 19$)

- (a) SRAM.
- (b) DRAM.
- (c) SRAM vs. DRAM.
- (d) Explain parallel processing.

5. Discuss the following in detail along with the examples of each: (4.75 Marks each, $4.75 \times 4 = 19$)

- (a) Main Memory.
- (b) Secondary Memory.
- (c) CPU.
- (d) Input and Output Devices.

SECTION-B

(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only. (4×8=32)

1. Discuss in detail Symmetric Multiprocessors.

2. Discuss various I/O ports of a computer system with proper diagrams, usage and functioning.
 3. Discuss Virtual Memory with diagram and example.
 4. Explain the DMA module and its function.
 5. Discuss various types of external memory with examples.
 6. Discuss terms: seek time, rotational delay and access time.
 7. Discuss SIMD, MISD, MIMD, NUMA with examples of each.
 8. Discuss Hypercube Networks with diagram.
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