**POORNIMA UNIVERSITY, JAIPUR**

**END SEMESTER EXAMINATION, December 2022**

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|  | **1BC1001** | Roll No. | Total Printed Pages: 1 |
| **1BC1001** |  |
| BCA I Year I-Semester (Main/Back) End Semester Examination, December 2022 | |
| **BCACCA1104 : Computer Organization and Architecture** | | | |

# Time: **3** Hours. Total Marks: **60**

Min. Passing Marks: **21**

Attempt **five** questions selecting one question from each Unit. There is internal choice from Unit I to Unit V. Marks of each question or its parts are indicated against each question / parts. Draw neat sketches wherever necessary to illustrate the answer. Assume missing data suitably (if any) and clearly indicate the same in the answer.

Use of following supporting material is permitted during examination for this subject.

# **1.--------------------------Nil--------------------** **2.------------------Nil-----------------------**

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|  |  | **UNIT-I (CO1)** | **Marks** | **Bloom Level** |
| **Q.1** | **(a)** | Draw and explain the logic gates with truth table.  a. EX-OR b. EX-NOR c. NAND | **(6)** | **Create** |
|  |  |  |  |  |
|  | **(b)** | Design and explain Half Adder with truth table. | **(6)** | **Create** |
|  |  | **OR** |  |  |
| **Q.2** | **(a)** | **Convert the following numbers**  **a. (10**56)16  =(?)8 b. (2724)8 =(?)10 c. (28.125)10=(?)2 | **(6)** | **Evaluate** |
|  |  |  |  |  |
|  | **(b)** | Compute the following using binary  (i) 13+B (ii) A-6 (iii) 15+12 | **(6)** | **Analysis** |
|  |  | **UNIT-II (CO2)** |  |  |
| **Q.3** | **(a)** | Draw a diagram of bus system with using multiplexer and explain it. | **(6)** | **Apply** |
|  |  |  |  |  |
|  | **(b)** | Explain arithmetic circuit of ALU with neat sketch. | **(6)** | **Remember** |
|  |  | **OR** |  |  |
| **Q.4** | **(a)** | Write note on shift operation and draw arithmetic logic shift unit | **(6)** | **Understand** |
|  |  |  |  |  |
|  | **(b)** | Draw common circuit for binary adder/ subtractor and explain its working. | **(6)** | **Apply** |
|  |  | **UNIT-III (CO3)** |  |  |
| **Q.5** | **(a)** | Draw a flow chart to determine instruction cycle. | **(6)** | **Create** |
|  |  |  |  |  |
|  | **(b)** | Explain size and functions of various registers. | **(6)** | **Remember** |
|  |  | **OR** |  |  |
| **Q.6** | **(a)** | Draw block diagram of common bus system to transfer data between various registers and memory. | **(6)** | **Apply** |
|  |  |  |  |  |
|  | **(b)** | Explain the micro-operations with Control and timing signal. | **(6)** | **Understand** |
|  |  | **UNIT-IV (CO4)** |  |  |
| **Q.7** | **(a)** | Draw Block Diagram of General Register Organization of Processor. | **(6)** | **Remember** |
|  |  |  |  |  |
|  | **(b)** | Draw memory Hierarchy and write the difference between RAM and ROM | **(6)** | **Evaluate** |
|  |  | **OR** |  |  |
| **Q.8** | **(a)** | Explain micro programmed control unit. | **(6)** | **Apply** |
|  |  |  |  |  |
|  | **(b)** | Write a short note on catche memory. | **(6)** | **Understand** |
|  |  | **UNIT V (CO5)** |  |  |
| **Q.9** | **(a)** | Explain Booth's multiplication algorithm | **(6)** | **Apply** |
|  |  |  |  |  |
|  | **(b)** | Multiply (-10) and (+4) using Booth's algorithm. | **(6)** | **Evaluate** |
|  |  | **OR** |  |  |
| **Q.10** | **(a)** | Write note on DMA transfer modes | **(6)** | **Understand** |
|  |  |  |  |  |
|  | **(b)** | Write the Characteristics of Multiprocessor. | **(6)** | **Understand** |