**POORNIMA UNIVERSITY, JAIPUR**

**END SEMESTER EXAMINATION, November 2022**

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|  | **2BT3126** | Roll No. | Total Printed Pages: 1 |
| **2BT3126** |  |
| B. Tech. II Year V- Semester (Back) End Semester Examination, November 2022  **(CE / CC / AI / DS)** | |
| **BCE03104 / BCC03104 / BAI03104 / BDS03104 : Computer Organization & Architecture** | | | |

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

Min. Passing Marks: **21/24/27**

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** |
| **Q.1** | **(a)** | What is a micro-operation? Explain in detail the four categories of micro operations. | **(6)** |
|  |  |  |  |
|  | **(b)** | How is asynchronous transfer different from synchronous transfer? | **(6)** |
|  |  | **OR** |  |
| **Q.2** | **(a)** | Write a short note on the following:  (i) Tri- state buffer (ii) Register Transfer Language | **(6)** |
|  |  |  |  |
|  | **(b)** | Explain different types of computer registers with common bus system with a neat sketch. | **(6)** |
|  |  | **UNIT-II (CO2)** |  |
| **Q.3** | **(a)** | Draw and explain the flowchart of instruction cycle. | **(6)** |
|  |  |  |  |
|  | **(b)** | Explain in detail the different instruction formats with examples | **(6)** |
|  |  | **OR** |  |
| **Q.4** | **(a)** | Explain the difference between direct and indirect addressing mode with help of suitable examples. | **(6)** |
|  |  |  |  |
|  | **(b)** | Explain different types of instructions with examples. Compare their relative merits and demerits | **(6)** |
|  |  | **UNIT-III (CO3)** |  |
| **Q.5** | **(a)** | Discuss about different types of addressing modes. | **(6)** |
|  |  |  |  |
|  | **(b)** | Draw and explain about micro program control unit. | **(6)** |
|  |  |  |  |
| **Q.6** | **(a)** | Draw and explain typical hardware control unit. | **(6)** |
|  |  |  |  |
|  | **(b)** | What are the differences between hardwired and micro programmed control units? | **(6)** |
|  |  | **UNIT-IV (CO4)** |  |
| **Q.7** | **(a)** | Draw the flowchart and explain about booths algorithm. Multiply 100111 with 11011 using booths algorithm | **(6)** |
|  |  |  |  |
|  | **(b)** | Why inter process synchronization needed? Explain | **(6)** |
|  |  | **OR** |  |
| **Q.8** | **(a)** | Perform the arithmetic operation in binary using 2’s complement representation  (i) (+42) + (-13) (ii) (-42) – (-13) (iii) (-19) +(-23) | **(6)** |
|  |  |  |  |
|  | **(b)** | Convert the following numbers with the indicated bases to decimal.  (i) (12121)8  (ii) (4310)16  (iii) (1010101000101)2 | **(6)** |
|  |  | **UNIT V (CO5)** |  |
| **Q.9** | **(a)** | Illustrate the characteristics of some common memory technologies. | **(6)** |
|  |  |  |  |
|  | **(b)** | Describe in detail about IOP Organization. | **(6)** |
|  |  | **OR** |  |
| **Q.10** | **(a)** | Explain with the block diagram the DMA transfer in a computer system. | **(6)** |
|  |  |  |  |
|  | **(b)** | What are interrupts? How are they handled? | **(6)** |