ADICHUNCHANAGIRI UNIVERSITY

18EC33

Third Semester BE Degree Examination November 2020
(CBCS Scheme)

Time: 3 Hours Max Marks: 100 marks

Sub: Computer Organization and Architecture

Q P Code: 62303

Instructions: 1. Answer **five full** questions.
2. Choose one full question from each module.
3. Your answer should be specific to the questions asked.
4. write the same question numbers as they appear in this question paper.
5. Write Legibly

Module – 1

1	a	Explain function of Processor Registers with a neat block diagram.	10 marks
	b	What are the functions of system software	10 marks

Or

2	a	Explain the three number representation formats in a computer with an example. What decimal value does the binary word 1010 1111 0101 0100 have when it represents *i. unsigned integer* *ii. 1's complement integer* *iii. 2's complement integer* *iv. sign-magnitude integer.*	*10 marks*
	b	Explain Big-Endian and little Endian schemes. Show how can a 32-bit word and 64 bit word can be stored in memory.	10 marks

Module – 2

	a	What is an assembler? Explain functions of assembler directives with examples	10 marks
	b	Define addressing modes? Explain any five addressing modes with an example for each.	10 marks

Or

	a	Explain interfacing of Keyboard and Display using program controlled I/O	10 marks
	b	Explain Parameter passing to subroutines, with suitable example.	10 marks

Module – 3

	a	Explain data transfer using Interrupt I/O method	10 marks
	b	Describe two methods of handling interrupts from multiple devices	10 marks

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Or

6	a	Write a note on bus arbitration		10 marks
	b	Write a note on working of 2 channel DMA controller		10 marks

Module – 4

7	a	Explain the organization of bit cells in a memory chip. Describe how a 1K x 1 memory chip is organized internally		10 marks
	b	Define ROM. Explain various types of ROM		10 marks

Or

8	a	Describe the terms : Latency, Bandwidth, locality of reference, mapping function and replacement algorithm, with reference to cache memory		10 marks
	b	Discuss how read and write operations are carried out in cache memory		10 marks

Module – 5

9	a	Explain Single Bus organization of datapath inside a processor		10 marks
	b	Write a note on multiple bus organizations and its advantages		10 marks

Or

10	a	*Explain in detail and with necessary step involved in execution of instruction* ***Add(R3), R1***		10 marks
	b	*With a neat block diagram explain* i) *Basic organization of microprogrammed control unit* ii) Organization of Control unit to allow conditional branching in the micro program		10 marks

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