

Fourth Semester B.E. Degree Examination, Dec.08/Jan.09

Computer Organisation

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions

- 1 a. Explain the following for a computer:
(i)MAR (ii)MDR (iii)IR (iv)PC (v)ALU & (vi)Control unit (06 Marks)
- b. Explain the operation of two-bus structure. (04 Marks)
- c. How the performance of a computer can be improved by using pipelining & super scalar equation. (06 Marks)
- d. Mention the differences between CISC and RISC processors. (04 Marks)

- 2 a. Explain (i)Big Endian assignment (ii) Little Endian assignment (06 Marks)
- b. Write a program to evaluate the expression $S = AxB + CxD$ using one address and two address formats.
Hint: The data (operands) are stored in the locations A, B, C & D respectively. (08 Marks)
- c. What is an assembler? Explain the functions of assembler directives. (06 Marks)

- 3 a. Describe any three modes of addressing. (06 Marks)
- b. Write ALP to add 'N' numbers using indirect mode. The N numbers are stored in the locations NUM1, NUM2..... NUMN respectively. Store the sum in the location SUMN (05 Marks)
- c. What is stack? Explain its role in subroutine nesting. (05 Marks)
- d. Explain, "Parameter passing" with an example. (04 Marks)

- 4 a. Explain I/O mapped I/O and describe any two methods of connecting multiple interrupting devices to CPU. (08 Marks)
- b. What is DMA? Explain the generation of two channel DMA controller. (07 Marks)
- c. Explain with a diagram the interface circuit for connecting a printer to the processor. (05 Marks)

- 5 a. Describe the organization of $64K \times 8$ memory using $16K \times 1$ static memory chips. (06 Marks)
- b. Explain cache and its mapping functions. (08 Marks)
- c. Explain the working principle of secondary storage device (any one). (06 Marks)

- 6 a. Write a note on fast adders. (05 Marks)
- b. Multiply 10011 and 01001 using Booth's algorithm. (05 Marks)
- c. Explain restoring algorithm for binary division. (04 Marks)
- d. Explain the representation of floating point numbers using IEEE formats. (06 Marks)

- 7 a. Using single bus organization, write the control sequence to execute the instruction $Add(R_3), R_1$. (07 Marks)
- b. Explain with diagrams how control signals are generated using single bus organization. (07 Marks)
- c. Explain multibus organization. (06 Marks)

- 8 Write short notes on :
 - a. SCSI bus.
 - b. Virtual memory.
 - c. Micro programmed control.
 - d. Microwave oven. (20 Marks)
