AU – 2723

Fifth Semester B. E. (Information Technology) Examination

COMPUTER ARCHITECTURE AND ORGANIZATION

Paper – 5 IT 03

(USC – 10732)

P. Pages : 2

Time : Three Hours] [Max. Marks : 80

Note : (1) Assume suitable data wherever necessary.
(2) Illustrate your answer wherever necessary with the help of neat sketches.
(3) Use pen of Blue/Black ink/refill only for writing the answer book.

1. (a) Explain with diagram the PUSH DOWN stack. Compare stack pointer and frame pointer. 7

   (b) Draw and explain the timing diagram of memory read operation. 6

OR

2. (a) Why do we need addressing mode ? Explain Auto increment and Auto decrement addressing mode by giving example. 7

   (b) Explain Big Endian and Little Endian with suitable example. 6

3. (a) Draw and explain the register transfer notation for single bus organisation. 6

   (b) Draw the three bus organization of the CPU and show the control steps for MULTIPLY (R_1), R_2 for this organization. 7

OR

4. (a) Explain Hardwired control unit and microprogramme control with diagram. 7

   (b) What is microinstruction ? Explain microinstruction sequencing in detail. 6

5. (a) What is direct memory access ? Explain need of DMA. Explain Bus Arbitration in DMA. 7

(b) What do you mean by interrupt ? Discuss Interrupt nesting with example. 7

OR

6. (a) Discuss SCSI Bus and its signal in detail. 7

(b) Draw and explain synchronous bus timing diagram in detail. 7

7. (a) What is cache memory ? How cache memory reduce the accessing time ? 7

(b) Explain memory hierarchy with reference to speed, size and cost. 6

OR

8. What is the need of virtual memory management ? How logical to physical address translation done in virtual memory management ? Also explain need of TLB in V. M. M. 13

9. (a) Explain Booth's algorithm for multiplication A = 110011 multiplicand and B = 101100 multiplier. 7

(b) Draw and explain n-bit ripple carry look ahead adder. 7

OR

10. (a) List out the steps for Booth's algorithm for restoring and non–restoring with example each. 14

11. (a) List and explain various input and output devices. 7

(b) Differentiate between Magnetic Disk and Magnetic Tape. 6

OR

12. (a) What is MODEM ? Explain its working in detail. 7

(b) What are different graphical input devices ? Explain any one. 6