CBCS Scheme

USN | | | | | | | | | | |

15CS34

Third Semester B.E. Degree Examination, June/July 2017

Computer Organization

Time: 3 hrs. Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

1 a. With a neat block diagram discuss the basic operational concept of a computer. **(06 Marks)**

b. Explain the methods to improve the performance of computer. **(04 Marks)**

c. Explain Big-Endian, little Endian and assignment byte addressability. **(06 Marks)**

OR

2 a. What are addressing modes? Explain the different 4 types addressing modes with example. **(08 Marks)**

b. Write the use of Rotate and shift instruction with example. **(04 Marks)**

c. What is stack and queue? Write the line of code to implement the same. **(04 Marks)**

Module-2

3 a. Define bus arbitration? Explain detail any one approach of bus arbitaration. **(08 Marks)**

b. What are priority interrupts? Explain any one interrupt priority scheme. **(04 Marks)**

c. Write a note on register in DMA interface. **(04 Marks)**

OR

4 a. With a block diagram explain how the printer interfaced to processor. **(08 Marks)**

b. Explain the following with respect to U.S.B

i) U.S.B Architecture

ii) U.S.B protocols. **(08 Marks)**

Module-3

5 a. Define :

i) Memory Latency

ii) Memory bandwidth

iii) Hit-rate

iv) Miss-penality. **(04 Marks)**

b. With a neat diagram explain the internal organization of a 2M×8 dynamic memory chip. **(06 Marks)**

c. Explain Associative mapping technique and set Associative mapping technique. **(06 Marks)**

OR

6 a. What is virtual memory? With a diagram explain how virtual memory address is translated. **(08 Marks)**

b. Write a note on :

i) Magnetic tape system

ii) Flash memory. **(08 Marks)**

Module-4

7 a. Perform following operations on the 5-bit signed numbers using 2's complement representation system. Also indicate whether overflow has occurred.
i) $(-9)+(-7)$ ii) $(+7)-(-8)$. **(04 Marks)**

b. Explain with a neat block diagram, 4 bit carry lookahead adder. **(05 Marks)**

c. Explain the concept of carry save addition for the multiplication operation, M×Q = P for 4-bit operands with diagram and suitable example. **(07 Marks)**

OR

8 a. Multiply the following signed 2's complement numbers using Booth's algorithm multiplicand = $(010111)_2$, multiplier = $(110110)_2$. **(05 Marks)**

b. Perform division operation on the following unsigned numbers using the restoring method. Dividend = $(10101)_2$ Divisor = $(00100)_2$, **(05 Marks)**

c. With a neat diagram, explain the floating point addition/subtraction unit. **(06 Marks)**

Module-5

9 a. Draw and explain multiple bus organization of CPU. And write the control sequence for the instruction Add R4, R5, R6 for the multiple bus organization. **(08 Marks)**

b. Explain with neat diagram, micro-programmed control method for design of control unit and write the micro-routine for the instruction Branch < 0. **(08 Marks)**

OR

10 a. With block diagram, explain the working of microwave oven in an embedded system. **(08 Marks)**

b. With block diagram, explain parallel I/O interface. **(08 Marks)**

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