CBCS SCHEME

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

15CS34

Third Semester B.E. Degree Examination, Aug./Sept. 2020
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. How to measure the performance of a computer? Explain. **(05 Marks)**

b. What are the four types operations required by the instruction to be performed by the computer? Explain the basic instruction types with an example. **(06 Marks)**

c. Explain the concept of stack frames when subroutines are nested. **(05 Marks)**

OR

2 a. What is performance measurement? Explain the SPEC rating for the computer in a program. **(07 Marks)**

b. Explain with examples, any three generic addressing modes with assembler syntax. **(09 Marks)**

Module-2

3 a. Discuss the interrupt priority with daisy chain and in the priority groups. **(05 Marks)**

b. With the typical block diagram of a DMA controller and explain how it is used of direct data transfer between memory and peripherals. **(06 Marks)**

c. With a neat figure, explain a general 8 bit parallel interface circuit. **(05 Marks)**

OR

4 a. Explain neatly the bus arbitration methods. **(05 Marks)**

b. Show how DMA transfer is accomplished with a neat sketch. **(06 Marks)**

c. Explain SCSI bus data transfer in a computer system. **(05 Marks)**

Module-3

5 a. Explain the organization of 1K × 1 memory chip. **(05 Marks)**

b. Illustrate cache memory mapping functions. **(06 Marks)**

c. Explain Virtual memory address translations. **(05 Marks)**

OR

6 a. Explain the direct mapped cache in mapping functions with a neat diagram. **(08 Marks)**

b. What is memory interleaving? Explain with a suitable example. **(08 Marks)**

Module-4

7 a. Explain 4-bit carry-look ahead adder with a neat diagram. **(06 Marks)**

b. Perform the addition and subtraction of following signed number (Any two)

i) +2 and +3 (Addition)
ii) −7 and −5 (Subtraction)
iii) +4 and −6 (Addition)
iv) +7 and −3 (Addition) **(04 Marks)**

c. Perform bit pair recoding for −11 and +27 [(−11) multiplicand and (+27) multiplier]. **(06 Marks)**

OR

8 a. Perform Booth's algorithm for (+15) and (– 6) [(+15) Multiplicand (– 6) Multiplier] **(08 Marks)**

b. Perform 1100 ÷ 11 using non restoring algorithm. **(08 Marks)**

Module-5

9 a. Explain the Three bus organization of processor. **(08 Marks)**

b. Show with a block diagram an embedded processor and briefly explain. **(08 Marks)**

OR

10 a. Compare and contrast the following :

i) Harwired control

ii) Microprogrammed control **(08 Marks)**

b. Explain the sequence of steps required to execute the following instruction ADD (R3), R_1. **(08 Marks)**

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