TCS/TIT-401   182

Even Semester Examination - 2017

B.TECH. (IV-SEMESTER)

COMPUTER ORGANIZATION

Time : 03:00 Hours   Max. Marks : 100

Note: Attempt **all** questions, each question carry **equal** marks.

1.   Attempt any four parts of the following   (5X4=20)

    (a)   What is advantage of using floating point number system? Explain with an example

    (b)   Draw and explain functional execution of bus line using tristate buffers.

    (c)   Draw and explain logic circuit for executing four logical operations.

    (d)   What is extended memory.

    (e)   How many 512X4 RAM chips are needed to provide a memory capacity of 4096 bytes? Show the corresponding interconnection diagram also.

(c) Draw the schematic diagram for daisy chain polling arrangement in case of vectored interrupt for three devices.

5. Attempt any two parts of the following: (10X2=20)

(a) Write function table for 4-bit ALU and write function of each function

(b) Write purpose of Microinstructions and explain with the help of example

(c) What is RISC and CISC ? Explain in detail any one of them

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    (f)   Write Types of RAM? Explain in Detail

2.   Attempt any four parts of the following: (5X4=20)

    (a)   What do you understand by Arithmetic Shift microoperation; explain Arithmetic shift right operation with its steps and example

    (b)   Discuss the principle of carry look ahead adder and design a 4-bit CLA adder and estimate the speed enhancement with respect to the ripple adder

    (c)   Draw and explain horizontal and vertical microinstruction format

    (d)   Explain Set associative mapping in detail

    (e)   Explain register transfer function using proper diagram with clock diagram indicating execution of function

3.   Attempt any two parts of the following :   (10X2=20)

    (a)   Draw and explain 4 bit binary adder/Subtractor circuit with example

    (b)   Draw and explain the flowchart for division of

two binary numbers using non-restoring algorithm. Use the example of 9 to be divided by 2

(c) What do you mean by DMA ? Why is it useful? Using suitable diagram explain the DMA operation in association with CPU

(d) What is microoperation explain with the help of example for arithmetic operations.

(e) Explain architecture of microprogrammed control with proper example

4. Attempt any two parts of the following : (10X2=20)

(a) A disk drive has 20 sectors/track, 4000 bytes/sector, 8 surfaces all together. Outer diameter of the disk is 12 cm and inner diameter is 4 cm. intertrack space is 0.1 mm. what is the number of tracks, storage capacity of the disk drive and what data transfer will be there from each surface ? the disk rotates at 3600 rpm.

(b) Draw Control unit and explain its working with proper table of control transfer