DELHI SKILL AND ENTREPRENEURSHIP UNIVERSITY

Program: Diploma in Computer Engg.

END SEMESTER EXAMINATION; Semester III, AY:2023-24

Course: Computer Organization

Course Code: CS-PC301

Time: 2 Hours **Max. Marks: 50**

Write your Answers in the Answer Booklets provided

SECTION-I (10*2=10)

Q1. Attempt any 10 out of 15 questions. (10*2=20)

I. *Define Microinstruction with example.*
II. Write the function of Program counter register.
III. What is DMA?
IV. Differentiate between direct and indirect addressing mode.
V. Write any two applications of stack.
VI. What is the significance of cache memory?
VII. Write the 2's complement of 10100110.
VIII. What is microprogrammed control unit?
IX. What is use of cache memory?
X. Perform the subtraction of 11010-10000 by taking 2's complement of subtrahend.
XI. List any four arithmetic microoperation.
XII. Define the term hit ratio.
XIII. What is implicit addressing mode?
XIV. Convert 101110 binary number into decimal.
XV. Define pipeline conflict.

SECTION-II (6*5=30)

Attempt any 6 questions out of 8 questions in SECTION-II

Q1. What is multiprocessor system. Differentiate between loosely coupled and tightly coupled system. (1+4) (T)

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Q2 What is pipelining. A nonpipelined system takes 50 ns to process a task. The same task can be processed in a six-segment pipeline with clock cycle of 10 ns. Determine the speedup ratio of the pipeline for 100 tasks. What is the maximum speed up ratio that can be achieved. (1+4) (A)

Q3 Define I/O processor. Draw the flow chart for CPU and I/O processor communication. (1+4) (T)

Q4 Explain the Associative memory with the help of block diagram (5) (T)

Q5 A Digital computer has a common bus system for 16 registers of 32 bit each. The bus is constructed with multiprocessors. Calculate the following (A)

a. How many selection inputs are there in each multiprocessor (2)
b. What size of multiplexer are needed (2)
c. How many multiplexers are there in bus? (1)

Q6 Represent -14 in 2's complement representation form. Also draw flow chart for booth multiplication algorithm. (2+3) (A)

Q7. Explain Flynn's classification of computer. Also write features of SIMD array processor.(5) (T)

Q8. Starting from the initial value of R= 11011101, Determine the sequence of binary values in R after logical shift left followed by circular shift right followed by logical shift left. (2+2+1) (A)

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