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Total No. of Questions : 13] **[Total No. of Pages : 02**

J-3267[S-1123] [2037]

MCA (Semester - 3rd)

COMPUTER SYSTEM ARCH. (MCA - 301)

Time : 03 Hours **Maximum Marks : 75**

Instruction to Candidates:

1) Section - A is **compulsory.**

2) Attempt any **Nine** questions from Section - B.

Section - A

(15 x 2 = 30)

Q1)

a) What is the advantage of DMA transfer?

b) A computer has 32 bit instructions and 12 bit addresses. If there are 250 two-address instructions, how many one-address instructions can be formulated?

c) What must the address field of an indexed addressing mode instruction be to make it the same as a register indirect mode instruction?

d) What are the basic difference between a branch instruction, a call subroutine instruction and program interrupt?

e) What is the difference between encoder and multiplexer?

f) What is the difference between synchronous and asynchronous data transmation?

g) Differentiate between isolated and memory mapped I/O?

h) What is the difference between trap and interrupt?

i) What is the transfer rate of an eight track magnetic tape whose speed is 120 inches per second and whose density is 1600 bits per inch?

j) What are various types of interrupts?

k) What is virtual memory?

l) What is cache memory? What are two important problems associated with cache memory?

m) Define : (a) Seek time (b) Rotational latency time

n) Differentiate between half adder and full adder?

o) List the merits and demerits of tape derive?

P.T.O.

Section - B

(9 x 5 = 45)

Q2) Explain the associative memory with a block diagram.

Q3) What is instruction format? Discuss the various instruction formats?

Q4) What is the need of memory protection? Explain how the protection is provided to the memory?

Q5) What is the purpose of addressing modes? Explain the different addressing modes?

Q6) What is the difference between serial and parallel transfer? Using a shift register with parallel load, explain how to convert serial input data to parallel output and parallel input data to serial output?

Q7) Differentiate micro programmed and hardwired control unit?

Q8) What are the various I/O data transfer modes? Differentiate between them?

Q9) Discuss the important RISC and CISC characteristics?

Q10) Explain the interrupt cycle? Draw the flow chart.

Q11) Explain the various page replacement techniques.

Q12) Draw the block diagram of dual 4-to-l line multiplexer? Explain its operation by function table?

Q13) What are the criteria on which memory hierarchy is formed? What information it conveys? Differentiate between main memory and cache memory.

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