Exam. Code: 0931
Sub. Code: 6932

1129

B.E. (Electronics and Communication Engineering)
Seventh Semester
EC-704: Computer Architecture and Organization

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

a) What are the two instructions needed in basic computer in order to set the E flip-flop to 1?
b) Show how the non-MRI tables can be stored in memory.
c) Perform the logic AND and XOR with two binary strings 10011100 and 10101010.
d) Define four segment pipeline processes.
e) What is the difference between isolated I/O and memory mapped I/O? (5x2)

UNIT – I

II. Design a 4-bit combinational circuit decrementer using four full-adder circuits. (10)

III. An output program resides in memory starting from address 2300. It is executed after the computer recognizes an interrupt when FGO-becomes a 1 (while IEN = 1).

IV. a) What instruction must be placed at address I?

b) What must be the last two instruction of the output program? (10)

V. Write a program loop, using a pointer and a counter, that clears to 0 the contents of hexadecimal location 500 through 5FF. (10)

UNIT – II

VI. Prove that the multiplication of two n-digit numbers in base r gives a product no more than 2n digits in length. Show that this statement implies that no overflow can occur in the multiplication operation. (10)

VII. Why the read and write control lines in DMA controller are bidirectional? Under what condition and for what purpose are they used as input and output? (10)

VIII. What is the difference between a microprocessor and a microprogram? Is it possible to design a microprocessor without a microprogram? Are all microprogrammed computers also microprocessor? (10)

x-x-x