

غير نظامي
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Computer Engineering

3rd Year

3.Hrs

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85 Marks

1. [10 M.]

(a). Comment : Computer- architecture , -organization , -design [2m]

(b). Draw block diagram Hard-Wired for: [8m]

(1) Single-Bus CPU structure (2) Two- Bus CPU structure

(3) Control Unit Organization (4) Implementing (3) with PLA

2. [16 M.]-----

Given Instructions : Stored in main memory as shown in Fig.(1)

Write steps ,and control signals to Fetch and Execute ,writing the contents of Registers in each steps

Hint: [R1]=2B , [R2]= 10 , Numbers in Hex-Dec.

3. [18 M.]-----

Given Flow-Chart of micro-program for the ADD instruction

• Numbers in Octal

ADD (Rsrc) + (Rdst) = Store in memory at [[375]]

where Rsrc (register direct mode) ,while Rdst (register indirect mode)

(a) Write the control signals of micro-routine [6m]

(b) Suggest a suitable partial format of field-encoded micro-routine

Using Next-Address Field [6m]

(c) Implement (b) with bit-patterns [6m]

4. [14 M.]-----

(a). Draw Bipolar, N-MOS, Dynamic, and ROM Memory Cells ,and Show how the Cell to be (1) Isolated (2) Read(H,L) (3) Write(H,L) [8m]

(b). Given 8 Chips Dynamic RAM, each 64Kx16

through block diagram show steps for (1) READ (2) Refreshments [6m]

5. [15 M.]-----

(a) Show different modules for 32 Word RAM [6m]

(b) Given 32Kx16 main memory , show different mapping methods with 1Kx16 Cache memory [9m]

