**Mid Term-2**

**Marks = 30**

**Time= 1 Hour**

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| 1. | If the last operation performed on a computer with an 8-bit word was an addition in which the two operands were 10110010 and 11000011, what would be the value of the following flags?  • Carry  • Zero  • Sign  • Even Parity  • Half-Carry | 5 |
| 2. | Use the Booth algorithm to multiply 6 (multiplicand) by - 5 (multiplier), where each number is represented using 4 bits. | 10 |
| 3. | Given the following memory values and a one-address machine with an accumulator, what values do the following instructions load into the accumulator?   |  |  | | --- | --- | | **a.** LOAD IMMEDIATE 20H  **b.** LOAD DIRECT 20H  **c.** LOAD INDIRECT 20H  D. LOAD INDIRECT 24H | E. LOAD R1  F. LOAD REGISTER INDIRECT R1  G. LOAD DISPLACEMENT 2, R2  H. LOAD DISPLACEMENT 2, R1 | | 5 |
|  | ….   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | Main Memory | | | Address | Contents | | 00020H | 24H | | 00021H | 25H | | 00022H | 2AH | | 00023H | 2BH | | 00024H | 21H | | 00025H | 23H | | |  |  | | --- | --- | | Register File | | | R1 | 23H | | R2 | 20H | | R3 | 10H | | R4 | 30H | | R5 | 2BH | | R6 | 2AH | | R7 | 21H | |   ….. |  |
| 4. | Draw internal architecture of a DRAM having capacity of 64Mx8 bits, identify its different sections and briefly describe how the CPU write any data onto it. | 10 |