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| **20CS305/20CB305/20DS305/20IT305**  **Hall Ticket Number:**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | | **II/IV B.Tech (Regular\Supplementary) DEGREE EXAMINATION** | | | **February, 2023** | **Common to CSE/CB/DS & IT Branches** | | **Third Semester** | **Computer Organization** | |  |
| Time: 3 Hours Maximum Marks:70   |  |  | | --- | --- | | ***Answer question 1 compulsory.*** | **(14X1 = 14 Marks)** | | ***Answer one question from each unit.*** | **(4X14=56 Marks)** | |  |

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| 1. | a) | | Convert (F3)16 into decimal. | CO1 | L2 | | 1M | |
|  | b) | | State the formulas for (r-1)’s Complement and r’s Complement | CO1 | L1 | | 1M | |
|  | c) | | What is register transfer language? | CO1 | L1 | | 1M | |
|  | d) | | Name any four logic microoperations. | CO1 | L1 | | 1M | |
|  | e) | | Define instruction code and operation code. | CO2 | L1 | | 1M | |
|  | f) | | List out the memory-reference instructions. | CO2 | L1 | | 1M | |
|  | g) | | How to represent control variables? | CO2 | L2 | | 1M | |
|  | h) | | Show the microinstruction format for the control memory. | CO2 | L1 | | 1M | |
|  | i) | | State the operations on a stack. | CO3 | L1 | | 1M | |
|  | j) | | What are the most common fields found in instruction format? | CO3 | L1 | | 1M | |
|  | k) | | Expand RISC and CISC. | CO3 | L3 | | 1M | |
|  | l) | | When is status command used? | CO4 | L2 | | 1M | |
|  | m) | | Define bootstrap loader. | CO4 | L1 | | 1M | |
|  | n) | | Show the connection of I/O bus to input-output devices. | CO4 | L3 | | 1M | |
|  | | **Unit –I** | | | | | | |
| 2. | a) | | Draw the arithmetic logic shift unit and show the function table for arithmetic logic shift unit. | CO1 | | L1 | | 7M |
|  | b) | | What are the number systems conversions available? Explain with an example. | CO1 | | L2 | | 7M |
|  | | **(OR)** | | | | | | |
| 3. | a) | | What are the different ways to implement a common bus system and explain with a neat sketch | CO1 | | L2 | | 7M |
|  | b) | | Label the diagram for 4-bit binary adder and 4-bit adder-subtracter. | CO1 | | L3 | | 7M |
|  | | **Unit –II** | | | | | | |
| 4. | a) | | Name the registers for the basic computer with number of bits used and describe their functionality. | CO2 | | L3 | | 7M |
|  | b) | | Interpret the symbols and binary code used for microinstruction fields. | CO2 | | L2 | | 7M |
|  | | **(OR)** | | | | | | |
| 5. | a) | | State the phases of an instruction cycle? Design the flowchart for instruction cycle | CO2 | | L1 | | 7M |
|  | b) | | Show the block diagram of the microprogram sequencer and discuss. | CO2 | | L2 | | 7M |
|  | | **Unit –III** | | | | | | |
| 6. | a) | | Examine the procedure involved in reverse polish notation with an example. | CO3 | | L3 | | 7M |
|  | b) | | Inspect the hardware for signed-magnitude addition and subtraction. | CO3 | | L2 | | 7M |
|  | | **(OR)** | | | | | | |
| 7. | a) | | List out any seven addressing modes and interpret each addressing mode with syntax. | CO3 | | L2 | | 7M |
|  | b) | | Display the flowchart for Booth multiplication operation and discuss the operations performed. | CO3 | | L4 | | 7M |
|  | | **Unit –IV** | | | | | | |
| 8. | a) | | Examine the working of associate memory with a neat diagram. | CO4 | | L2 | | 7M |
|  | b) | | Illustrate the mapping procedures while considering the organization of cache memory. | CO4 | | L3 | | 7M |
|  | | **(OR)** | | | | | | |
| 9. |  | | Analyse the various modes of data transfer to and from peripherals | CO4 | | L2 | | 14M |

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