Code No: 153AG **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year I Semester Examinations, March - 2021
COMPUTER ORGANIZATION AND ARCHITECTURE
(Computer Science and Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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1.a) Discuss the functional units of a digital computer.
b) Demonstrate construction of a common bus system with multiplexers. [7+8]

2.a) Design a 4-bit combinational circuit decrementer using four full-adder circuits.
b) What is the difference between a direct and an indirect address instruction? How many references to memory are needed for each type of instruction to bring an operand into a processor register? [7+8]

3.a) Discuss the need of memory stack and stack limits.
b) Explain the general register organization of the processor. [7+8]

4. Explain addition and subtraction of floating point numbers with an example and necessary flowchart. [15]

5.a) A two way set associative cache has lines of 16 bytes and a total size of 8 K bytes. The 64 Mbytes main memory is byte addressable. Show the format of main memory address.
b) How does SDRAM differ from ordinary DRAM? [8+7]

6.a) Explain the major differences between the central computer and peripheral. How to resolve these differences?
b) Discuss the Strobe control method of Asynchronous data transfer. [8+7]

7.a) What is parallel processing? Explain Flynn's classification of computer.
b) Illustrate vector operations and vector processing. [8+7]

8.a) Discuss about RISC Pipeline.
b) What is cache coherence problem? Discuss solutions for it. [7+8]

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