Hall Ticket Number:

Code No.: 21516 S

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. II Year (I.T.) I-Semester Supplementary Examinations, May/June-2017

Computer Organization

Time: 3 hours Max. Marks: 70

*Note: Answer **ALL** questions in **Part-A** and any **FIVE** from **Part-B***

Part-A (10 X 2=20 Marks)

1. Distinguish between Multiprocessors and Multicomputers.
2. Discuss the purpose of System Software.
3. List out the various Assembler directives used in Assembly Language Program.
4. Explain about basic Instruction Cycle with a Flow chart.
5. Demonstrate the hardware components needed for connecting a keyboard to a Processor.
6. Compare Hard-wired control and Micro-Programmed control.
7. If each address space represents one byte of storage space, then how many address lines are needed to access RAM chips arranged in a 4 × 6 array, where each chip is 8K × 4 bits?
8. Write a short notes on Magnetic disks.
9. What are the reasons for the pipeline that it may not perform at its maximum rate?
10. What is Memory Interleaving?

Part-B (5 × 10 = 50 Marks)
(All bits carry equal marks)

11. a) Draw and explain in detail about the functional units of a Computer.
    b) What is meant by normalization in floating point representation? Why do we need it?
12. a) Registers R1 and R2 of a computer contain the decimal values 12000 and 6000 respectively. What is the effective address of the memory operand in each of the following instructions?
    i) MOV 20 (R1), R5 *ii)* STORE R5, 30 (R1, R2)
    iii) LOAD #3000, R5 *iv)* ADD - (R2), R5
    b) Explain the role of Processor stack in the execution of subroutine nesting.
13. a) What is Bus Arbitration and explain its types?
    b) Describe in brief the different modes by which data transfer can take place between a computer unit and its I/O devices. What is the difference between Synchronous and Asynchronous data transfer?
14. a) What is Cache Memory? Explain any one mapping technique used in the usage of Cache Memory.
    b) Explain Synchronous DRAMS in detail.
15. a) What is an Instruction Pipeline? Explain, in detail, the two types of Instruction Pipeline conflicts with suitable example.
    b) Discuss about out-of-order execution and superscalar operation in Pipelined Processors.

Contd...2

16. a) Perform arithmetic operations (+54) + (-19) and (-54)-(-19) in binary using 2's complement representation for negative numbers.

    b) Explain about the classification of Computer Instructions.

17. Write short notes on any *two* of the following:
    a) Interrupts
    b) ROM
    c) Instruction Hazards.

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