SE385

Total No. of Printed Pages:2

S.E. (Information Technology) (Semester- III) (Revised Course 2007-08)
EXAMINATION Nov/Dec 2019
Computer Organization & Architecture

[Duration : Three Hours] **[Total Marks : 100]**

Instructions:-
1) Answer any 5 questions, atleast one from each Module.
2) Assume suitable data if necessary.

MODULE-I

Q.1
a) Explain the Top Level view of computer components. **(4)**

b) With neat state diagram, explain instruction cycle which includes interrupt cycle into consideration **(8)**

c) With the help of a flowchart explain Booths Algorithm. Perform the following Multiplication (-8)*(-2). **(8)**

Q.2
a) Explain the following terms **(6)**
i) 2's complement
ii) Normalization

b) Draw the flowchart for the division of signed magnitude (restoring method) and explain. **(6)**

c) Represent the following numbers in IEEE 32 bit notations. **(8)**
i) -2.8 ii) 1/13 iii) 0.8 iv) -9.0

MODULE-II

Q.3
a) Draw Memory cell structure of DRAM and SRAM. **(8)**
b) List and explain the elements of cache Design **(6)**
c) Explain cache read operation. Support your answer with flowchart. **(6)**

Q.4
a) List and Discuss features of various semiconductor memories w.r.t category, erasure, write. **(6)**
b) Explain need for RAID technology in computer organization with suitable structure. **(8)**
c) Illustrate the need of virtual memory in computer system. **(6)**

MODULE-III

Q.5
a) Explain any four branch prediction approaches to deal with conditional branches. **(4)**
b) Explain strobe control with relevant timing diagrams. **(4)**
c) Explain with a neat diagram the I/O channel architecture. **(6)**
d) Explain with a suitable example how asynchronous communication interface takes place. **(6)**

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Q.6
a) Explain interrupt processing in detail. **(6)**
b) Explain different DMA configurations with diagram. **(4)**
c) List and explain major functions or requirements for I/O module **(4)**
d) Write note on the following: **(6)**
   i. Daisy Chain
   ii. Software Poll
   iii. Bus Arbitration

MODULE-IV

Q.7
a) Explain the characteristics of multiprocessor. **(6)**
b) With the help of neat diagram explain two address field instruction microinstruction. **(6)**
c) Explain functioning of micro programmed control unit. **(8)**

Q.8
a) Explain the concept of overlapped register organization. **(8)**
b) Briefly describe four main characteristics of RISC. **(6)**
c) Discuss the difference between tightly coupled multiprocessor and loosely coupled multiprocessor from the viewpoint of hardware organization and programming techniques. **(6)**

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