3E7940

Roll No. : _____ _____ Total Printed Pages : 2

3E7940

M. Tech. (Sem. III) (Main / Back) Examination, March/April - 2011
Computer Science & Engineering
3MCS2.3 Network System Design

Time : 3 Hours] [Total Marks : 100
[Min. Passing Marks : 33

Attempt any five questions. Marks of questions are indicated against each question. Draw neat and comprehensive sketches wherever necessary to clearly illustrate your answer. Assume missing data suitably if any and specify the same.

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. Nil 2. Nil

1 (a) **What are the various packet processing function which could be performed by a Network Processor ?**

(b) **Explain Address lookups and packet forwarding function in detail.**

(c) **Explain scratch pad memory with its application.**

7+8+5

2 (a) **What is major difference between Bridge and IP forwarding ? Write IP forwarding algorithm with used data structure.**

4+6

(b) **Trace the sequence of steps of packet travels with in IXP 1200, starting from the point when Ethernet MAC receives data.**

10

3 (a) **What do you mean by zero-overhead when a context switch occurs ? Explain.**

(b) **How can be interpreting the fragment-offset field of IP datagram ? Explain with suitable diagram.**

(c) A TCP entity transmits 10000 bytes of data 2000 bytes segment (This including the TCP header, there will be 2020 bytes of IP data for each segment). The IP entity is operating with a maximum transmission unit (MTU) of 1024 bytes. Calculate how many packets the IP entity will transmit and justify your answer.
(Note: You may ignore errors and assumes that IP headers are 20 bytes).

4 (a) What is the difference between the workbench and Tran. ? Explain.
(b) Draw IXP 1200 block diagram and explain working of each unit in detail.
(c) Classify the queueing networks according to the priority. Explain each type with block diagram.

4+10+6

5 (a) Explain explicit parallelism with suitable example.
(b) A microengine can issue a reference com and then swap out, allowing another thread (within the same micro engine) to run. In this way, while one microengine thread is waiting for data, or some operation to complete, another thread is allowed to run and complete some useful work. Explain this concept of context swapping and threading in detail with help of neat diagrammatical. representation.
(c) Why we know MAC address as burned-in-address ? Explain the format for MAC address.

5+12+3

6 (a) Illustrate the TCP splicing with suitable example. Write algorithm for TCP splicer.
(b) What is architecture, functional units and memory of configurable instruction set processor (cognigine). Explain with flow diagram.
(c) Explain Ingress and Egress processing.

6+9+5

7 (a) How do you develop code for the strong ARM core ? Give complete detail about the tool set and required configuration.
(b) Explain the functionality provided by SRAM and SDRAM units.
(c) Explain algorithm to design a micro ACE that forwards packets according to a classification tag.

8+6+6