QP Code : 31134

(3 Hours)   Total marks : 80

Note:
- Question No. 1 is compulsory.
- Attempt any Three questions out of remaining questions.
- Make suitable assumptions whenever necessary.

Q 1:   [4 X 5]
- a) Compare connection oriented and connectionless services.
- b) Explain in short Subnetting.
- c) Explain in short different framing Methods.
- d) Explain in short TCP/IP Model.
- e) What is the use of SSH ?

Q 2:
- a) Explain any four functions of Data Link layer with example.   [10]
- b) What is IPv4 protocol? Explain the IPv4 Header format with diagram. [10]

Q 3:
- a) Explain Classless Inter Domain Routing (CIDR).   [10]
- b) Discuss the quality of service parameters in computer network.   [10]

Q 4:
- a) What are the steps involved in link state routing. Explain the contents
     and requirements of link state packets.   [10]
- b) Compare Open Loop congestion control, Closed Loop congestion control.[10]

Q 5:
- a) Write a Program for client-server application using Socket Programming(TCP).
                                                                     [10]
- b) An ISP is granted a block of addresses starting with 150.80.0.0/16.
     The ISP wants to distribute these blocks to 2600 customers as follows.
     a. The first group has 200 medium-size businesses; each needs 128
     b. The second group has 400 small businesses; each needs 16
     c. The third group has 2000 households; each needs 4 addresses. Design the
  subblocks and give the slash notation for each subblock. Find out how many
  addresses are still available after these allocations.   [10]

                                                                     [5 X 4]
Q 6: Write short notes on the following.

- a) Virtual LAN
- b) FDDI
- c) BGP
- d) SNMP

FW-Con.10937-16.

QP Code : **31049**

(3 Hours) [**Total Marks : 80**

N.B. (1) Question **No. 1** is **compulsory**
(2) Attempt any three questions from remaining questions.
(3) Assume Suitable data if required

1. (a) What is mutual exclusion? Explain its Significance. 5
   (b) Discuss various scheduling Criteria. 5
   (c) Explain services provided by operating system. 5
   (d) Write short note on system calls. 5

2. (a) What is deadlock? Explain the necessary and sufficient conditions for the deadlock. 10
   Suggest techniques to avoid deadlock.
   (b) Differentiate the following : 10
   i) Process vs Thread ii) Preemptive vsNon-Preemptive Scheduling

3. (a) Explain the following in brief : 10
   i) Process Synchronisation ii) Inter-Process Communication (IPC)
   (b) Discuss partition selection algorithm in brief. Given memoy partition of 150k, 500k, 10
   200k, 300k & 550k (in order), how would each of the first fit, best fit and worst fit
   algorithm place the processes of 220k, 430k, 110k & 425k (in order). Which algorithm
   makes the most efficient use of memory?

4. (a) Find AWT, ATAT, ART and AWTAT for the following set of processes with CPU 10
   burst time in ms. Assume that all processes arrive at time 0.
   (P1-19), (P2-7), (P3-3)
   i) FCFS with order P2, P3, P1
   ii) Round Robin (Quantum = 2ms)
   (b) Explain paging hardware with TLB along - with protection bits in page table. 10

5. (a) Explain various allocation methods with reference to file system? 10
   (b) Calculate hit and miss percentage for the following string using page replacement 10
   policies FIFO, LRU and Optimal. Compare it for the frame size 3 and 4.
   2,0,3,0,4,2,3,0,3,2,7,2,0,7,5,0,7,5,7,0

6. Write short note on the following : (Any Two) 20
   (a) File management in Linux
   (b) Belady's anomaly
   (c) Case study of windows operating system
   (d) Virtual memory

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FW-Con.8958-16.

V – Comp.
M.P.

17/6/15

(80 Marks) (3 Hours)

- Question no. 1 is compulsory.
- Answer any three questions from question no. 2 – 6.
- Assume suitable data, if necessary.

Q.1. Answer following questions in brief.
    a. Explain programming model of 8086. (05)
    b. Explain V86 mode of 80386DX. (05)
    c. Explain, in brief, pipeline stages on Pentium processor. (05)
    d. Explain, in brief, data format supported by SuperSparc processor. (05)

Q.2. a. Explain memory segmentation with pros and cons. (08)
    b. Draw and explain the block diagram of 8255. Also, explain different operating modes of 8255. (12)

Q.3. a. Design 8086 based minimum mode system for following requirements: (12)
      I. 256 KB of RAM using 64 KB x 8-bit device
      II. 128 KB of RAM using 64 KB x 8-bit device
      III. Three 8-bit parallel ports using 8255
      IV. Support for 8 interrupts
    b. Explain, in brief, cache organization of Pentium processor. (08)

Q.4. a. Draw and explain architecture of SuperSparc processor. (12)
    b. Discuss, in brief, protection mechanism of 80386DX. (08)

Q.5. a. Draw and explain architecture of Pentium processor. (10)
    b. Draw timing diagram of read operation on 8086 based system. (10)

Q.6. Write short notes on
    a. 8089 I/O Processor (05)
    b. Comparison between i5 and i7 (05)
    c. SuperSparc registers (05)
    d. 8259 – PIC (05)

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(3 HOURS)

[Total Marks: 80]

N.B.: (1) Question no. 1 is compulsory.

(2) Attempt any three questions from remaining.

(3) Assume suitable data wherever necessary.

Q1. (a) What is UML? Explain role of different UML diagrams in system design. (10)

(b) Explain DFD (up to two levels) with suitable example. (10)

Q2. (a) Explain different requirement gathering techniques used in system analysis. (10)

(b) Explain software development life cycle used for system analysis. (10)

Q3. (a) What is cost benefit analysis? Illustrate any one model of cost benefit analysis. (10)

(b) Explain Zachman's framework for software system design. (10)

Q4.(a) Draw the use case diagram of a library management system with extend, include and generalize relations between use cases. (10)

(b) What are characteristics of good graphical user interface? Draw GUI for online course registration system. (10)

Q5.(a) Assume that the hospital management system is deployed using 3 tier architecture, explain its various components and its deployment with the help of diagrams. (10)

(b) Draw the sequence diagram for login procedure to a system. Include all possible scenarios and draw its activity diagram also. (10)

Q6. (a) Define cohesion and coupling in system design? High cohesion and low coupling is recommended for good system design. Justify. (10)

(b) Your college wishes to prepare and maintain the database system to track progress of the students who were recruited through college training and placement cell. Prepare the proposal to design above system. (10)

FW-Con. 11338-16.