TE | Sem-V (CBSGS) | CMPN | Microprocessors | NOV-16

Q.P. Code : 581200

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question **No.1** is **compulsory**.
(2) Answer **any four** questions from **Q.No.2** to **Q.No.7**.
(3) **Figures** to the **right** indicate **full marks**.
(4) Assume suitable **data** if **required**.

1. (a) What is purpose of maximum mode of 8086? Give suitable example. **5**
   (b) Explain flag register of 80386DX. **5**
   (c) Compare Pentium, Pentium II and Pentium Ill processors. **5**
   (d) List different addressing modes of 8086. **5**

2. (a) Design 8086 based system for following requirements : **10**
      (i) Clock frequency 5 MHz
      (ii) 512 KB RAM using 32 KB x 8
      (iii) 256 KB ROM using 32 KB x 8
   (b) Draw and explain block diagram of 8253. **10**

3. (a) Draw and explain interfacing of math coprocessor (8087) with 8086. **10**
   (b) Explain data segment descriptor with neat diagram. **10**

4. (a) Explain, in brief, branch prediction mechanism is on Pentium processor. **10**
   (b) Explain, with neat diagram, cache memory organization is supported by Pentium processor. **10**

5. (a) Explain, in brief, data formats supported by SuperSparc processor. **10**
   (b) Explain the need of DRAM controller for interfacing DRAM with 8086. Draw and explain interfacing of DRAM controller with 8086. **10**

6. Write short note on :
   (a) Mixed language programming **5**
   (b) Virtual 86 mode of 80386DX **5**
   (c) 82888 Bus Controller **5**
   (d) Control registers of 80386DX **5**

TE/CMPN-V/CBSGS - Operating Systems - Nov-16

QP CODE : 581102

(3 Hours) Total Marks: 80

N.B. 1. Q.no.1 is **compulsory**
2. Attempt any **three** out of the remaining five questions
3. Figures to **right** indicate **full** marks
4. Assume suitable data if necessary but justify the same

Q.1. Attempt the following **(Any four)**
a. What is Kernel? Describe briefly the approaches of designing Kernel. (5)
b. Explain the difference between paging and Segmentation (5)
c. Explain the effect of page size on performance of Operating System (5)
d. Explain various I/O buffering techniques. (5)
e. What do you mean by Busy Waiting? What is wrong with it? (5)

Q.2. a. Calculate hit and miss for the following string using page replacement policies – FIFO, LRU and Optimal. Compare it for the frame size 3 & 4.
1 2 3 2 1 5 2 1 6 2 5 6 3 1 3 6 1 2 4 3 (10)
b. What is a deadlock? Explain the necessary and sufficient conditions for the deadlock. Also suggest techniques to avoid deadlocks. (10)

Q.3. a. Explain an algorithm for producer-consumer problem (10)
b. Explain the banker's algorithm in detail. (10)

Q.4. a. Explain the hardware support for paging (10)
b. Assume the following processes arrive for execution at the time indicated and the length of cpu burst time given in msec. (10)

Job	Burst time	Priority	Arrival time
P1	8	3	3
P2	1	1	1
P3	3	2	2
P4	2	3	3
P5	6	4	4

For the above process parameters, find average waiting times and average turnaround times for the following scheduling algorithms- First Come First Serve, Shortest Job First, non preemptive priority and Round Robin (assume quantum=2 units)

Q.5. a. Explain LINUX operating system with Kernel, Memory management & scheduling. (10)
b. Compare the following Disk scheduling algorithms using appropriate example- SSTF, FCFS, SCAN, C-SCAN, LOOK (10)

Q.6. Write notes on the following: (20)

a. Resource Allocation Graph
b. Process Control Block
c. Demand Paging
e. Scheduling in Linux system

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Sem-V(CBSGS)/CMPN/Structured and Object Oriented Analysis & Design/Nov-16

Q.P. Code : 581402

(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) Define a system. Write key differences between structured and object oriented analysis and design. 10

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

Q2. (a) What is cost benefit analysis? Illustrate any one model of cost benefit analysis. 10

(b) Draw the use case diagram for online railway reservation system with extend, include and generalize relations between use cases. 10

Q3. (a) Explain different requirement gathering techniques used in system analysis. 10

(b) Define cohesion and coupling. Explain different types of coupling. 10

Q4.(a) What is significance of user interface in system development? Draw graphical user interface for online shopping system. 10

(b) What is data flow diagram (DFD)? What are the steps to draw DFD? Explain with example. 10

Q5.(a)Assume that the library management system is deployed in client server architecture. Explain the various components and its deployment using diagrams. 10

(b) Draw sequence diagrams for online course registration in university for checking course availability, student eligibility before confirmation of registration. 10

Q6. (a) Explain software requirement specification (SRS) document with example. 10

(b) Explain boundary class, entity class and control class with UML notations. 10

CMPN | SEM-V(CBSGS) | Computer Network | Nov-16.

Q.P. Code : 581300

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

N.B. : (1) Question **No.1** is **compulsory**.
(2) Attempt **any Three** questions out of remaining questions.
(3) Make **suitable** assumptions whenever **necessary**.

2. (a) List the advantages of fiber optics as a communication medium. **20**
(b) List design issues in OSI layers.
(c) What is the use of SSH ?
(d) What is the throughput of the system both in pure ALOHA and Slotted ALOHA, if the network transmits 200 bit-frames on a shared channel of 200kbps and the system produces (a) 1000 frames per second (b) 500 frames per second.

2. (a) Explain any four functions of Session layer with example. **10**
(b) What is ICMP protocol? Explain the ICMP Header format with diagram. **10**

3. (a) Explain CSMA Protocols. Explain how collisions are handled in CSMA / CD. **10**
(b) Discuss the quality of service parameters in computer network. **10**

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 and Closed Loop congestion control. **10**

5. (a) Write a Program for client-server application using Socket Programming (UDP). **10**
(b) An ISP is granted a block of addresses starting with 190.100.0.0/16 (65, 536 addresses). The ISP needs to distribute these addresses to three groups of customers as follows : **10**
(i) The first group has 64 customers; each needs 256 addresses.
(ii) The second group has 128 customers; each needs 128 addresses.
(iii) The third group has 128 customers; each needs 64 addresses. Design the sub blocks and find out how many addresses are still available after these allocations.

TURN OVER

6. Write a short notes on the following :
   (i) Virtual LAN
   (ii) RARP
   (iii) HDLC
   (iv) SMTP
