TE. comp. sem-V (R) Dec. 2017.

T2825 / T0497 OPERATING SYSTEMS

TE. Computer) (Sem V) CBSGS

Operating Systems

Q.P. Code: 22650

(3 Hours) [Total Marks: 80]

20/11/2017

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

(2) Attempt any **three** questions out of remaining five questions

1. Attempt any **four**
   (i) What is mutual exclusion? Explain its significance. 5
   (ii) Explain the concept of Segmentation. 5
   (iii) What is Semaphore? Explain any one type of Semaphore. 5
   (iv) Explain services provided by Operating system. 5
   (v) What is use of modify bit and present bit in page table? 5

2. (a) Explain the following in brief :
   i) Process Synchronisation ii) Inter-Process Communication 10
   (b) Explain hardware support for paging. 10

3. (a) What is deadlock ? Explain necessary and sufficient conditions to occur deadlock. Suggest techniques to avoid deadlock. 10

   (b) Assume following processes arrive for execution at the time indicated and length of CPU burst time given in ms. 10

Process	Burst Time	Arrival Time	Priority
P1	10	0	5
P2	6	0	2
P3	7	1	4
P4	4	1	1
P5	5	2	3

   Find AWT, ATAT for FCFS, SJF (Non-preemptive) & Round Robin (Quantum – 3 ms)

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

5. (a) We assume a disk with 200 tracks and disk request queue has random requests in it. The requested tracks in the order received by disk scheduler, are 55,58,39,18,90,160,150,38,184. Starting at track 100. Calculate average seek length using FIFO, SSTF, SCAN and C-SCAN. Give which disk scheduling is best for this scenario. 10

   (b) Explain I/O management in UNIX 10

6. Write a short note on the following: (Any Four) 20
   (a) Resource allocation graph
   (b) Process control block
   (c) System components in Windows architecture
   (d) Scheduling in Linux System
   (e) Virtual memory

T.E. Computer (Sem II) CB598 Microprocessor

Q.P. Code: 22633

Date 24/11/17

Time 3 hrs. Max Marks: 80

Notes: 1. Q. 1 is compulsory
2. From remaining answer any 3 questions.
3. Draw neat diagram wherever necessary

Q.1 a) Write instruction issue algorithm used in Pentium. 5
b) Draw format of selector and explain its field. 5
c) Explain power on reset circuit used in 8086 system. 5
d) Discuss control word format for Bit Set Reset (BSR) mode of 8255 PPI. 5

Q.2 a) Explain maximum mode of 8086 microprocessor. 10
b) Interface three 8259s with 8086 in minimum mode and explain its functionality in fully nested mode. 10

Q.3 a) How flushing problem is minimised in Pentium? Explain. 10
b) Draw block diagram of Super SPARC and explain in brief. 10

Q4. a) Discuss data cache organisation of Pentium. 10
b) Explain address translation mechanism used in 80386 DX. 10

Q.5 a) Design 8086 based system with following specifications. 10
i) 8086 is working in minimum mode at 10 MHz.
ii) 8KB EPROM using 2 KB chips.
iii) 16 KB SRAM using 8 KB chips.
Discuss system with memory address map.
b) Draw and explain EFLAG register format of 80386 DX. 10

Q.6 Answer any four. 20
a) Write addressing modes of following instructions of 8086.
i) MOV al, [bx + si]
ii) AND cl, [2000]
iii) ADD ax, [bx + si + 2000]
iv) IN al, dx
v) POP BX
b) Draw and discuss timing diagram for read operation in minimum mode of 8086.
c) Explain memory segmentation of 8086.
d) Explain in short data types of SPARC.
e) List features of 8253.

T.E. Sem V (Comp. Engg) CBSGS.
Computer networks

Q. P. Code: 24644
DL30/11/17

(Time: 3hrs) (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.

Q1: a) Explain the need of layered design for communication and networking .Compare the OSI reference model &TCP/IP. (10)

Q1: b) i) How does the token Bucket Algorithm work? (5)

ii) Explain in short different framing methods. (5)

Q2: a) What is IPV4 Protocol ?Explain the Ipv4 Header format with diagram. (10)

b) Explain sliding window protocol using Go Back –N technique. (10)

Q3: a) What are transport service primitives? Explain (10)

b) What is congestion control? Explain various Congestion prevention policies. (10)

Q4: a) Explain CSMA Protocols. How are collisions handled in CSMA/CD (10)

B) What are the steps involved in link state routing ? Explain the contents and requirements of link state packets . (10)

Q5: a) Explain with the help of suitable diagram TCP connection management and release (10)

b) Write a program for client server application using socket programming (TCP) (10)

Q6: Write a Short notes on the Following (20)

i) Virtual LAN

ii) SNMP

iii) SMTP

iv) DNS

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T.E. (Comp. Engg) Sem-V CBSGS Rev-2012

SOAD.

Q.P Code: 24566

8/12/2017

(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 system? Which are the components of system? What are the differences between structured and object oriented system? **(10)**

(b) Explain Business process re-engineering [BPR] of business processes. **(10)**

Q2. (a) What is cohesion and coupling in the context of software design? Explain different types of coupling. **(10)**

(b) Draw class diagram (minimum 4 classes) for customer complaint management system showing different relationships between classes. **(10)**

Q3. (a) What is the importance of data flow diagram (DFD) in structured analysis and design? Draw DFD for suitable example. **(10)**

(b) What are the different types of cost-benefit analysis? Explain ROI method with example. **(10)**

Q4. (a) What is the use of deployment and component diagram? Prepare deployment and component diagram for ATM system. **(10)**

(b) Explain modeling application architecture. **(10)**

Q5. (a) Explain the need for system integrity, control and security. **(10)**

(b) What is the purpose of use case diagram? Draw use case diagram with include and extends relationships for railway reservation system. **(10)**

Q6. Write short notes (any two) **(20)**

a) SRS document
b) Design of user interface
c) Requirement gathering techniques
d) Boundary class, entity class and control class
