

TE[COMP] SEM-V [CBGS] MAY 2015

SUB: OS

13/5/15

Q.P. Code : 3317

(3 Hours)

[Total Marks : 80

- N.B. (1) Question No.1 is compulsory.
(2) Attempt any three questions out of the remaining questions.
(3) Assume suitable data wherever necessary and mention it clearly.

1. (a) Solve any five (each question carries 2 marks) :
(i) Differentiate between monolithic and microkernel. 10
(ii) Explain effect of page size on performance.
(iii) Draw and explain five state process model.
(iv) What is paging ?
(v) What is thrashing ?
(vi) Explain data structures used in Banker algorithm
- (b) Explain Linux OS with respect to Kernel, memory management and scheduling. 10
2. (a) Explain different file access methods 10
(b) Explain critical section problem with its different solutions. 10
3. (a) What is deadlock ? Explain necessary and sufficient condition for deadlock to occur. Explain deadlock avoidance, prevention and detection. 10
(b) The requested tracks in the order received are - 54, 57, 40, 20, 80, 120, 150, 45, 180. Apply the following disk scheduling algorithm starting track at 90. 10
(1) FCFS (ii) SSTF (iii) C-SCAN
4. (a) What is operating system. Explain different functions and objectives of operating system. 10
(b) Consider the following snapshot of a system. 10

	Allocation			Max			Available		
	A	B	C	A	B	C	A	B	C
P0	0	1	0	7	5	3	3	3	2
P1	2	0	0	3	2	2			
P2	3	0	2	9	0	2			
P3	2	1	1	2	2	2			
P4	0	0	2	4	3	3			

JP-Con. 8644-15.

TURN OVER

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Q.P. Code : 3317

2

Answer the following questions using Bankers algorithm.

- (a) What is the content of the matrix need ?
 - (b) Is the system in safe state ?
 - (c) If the request from P1 arrives for (1, 0, 2) can the request be granted immediately.
5. (a) What is paging ? Explain LRU, FIFO, OPT page replacement policy for the given page frame sequences. Page frame size is 4. 10
2, 3, 4, 2, 1, 3, 7, 5, 4, 3, 2, 3, 1
Calculate page hit and page miss.
- (b) What is mutual exclusion ? Give software approaches for mutual exclusion. 10
6. (a) What are system calls ? Explain any five system calls. 10
- (b) Explain how readers / writers problem can be solved using semaphores. 10

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(3 Hours)

[Total Marks : 80

- N.B. (1) Question no. 1 is compulsory.
(2) Attempt any three from the remaining.

1. (a) Describe why a system needs to be analyzed and what are the roles of a system analyst? 10
(b) Discuss the various steps involved in object oriented system design with appropriate diagrams. 10
 2. (a) Write a short note on : Business Process Re-engineering and its activities. 10
(b) What do you mean by SDLC? Describe the different phases of SDLC? 10
 3. (a) Draw use case diagram for course registration system and write the use case specification for any two use cases 10
(b) Write a system proposal to keep track of inventory in manufacturing unit. 10
 4. (a) Draw the DFD for order entry system (up to 2 levels) and describe the procedure for its validation. 10
(b) Draw the sequence diagram for login procedure to a system. Include all possible scenarios and draw its activity diagram also. 10
 5. (a) Assume that the library management system is deployed in a client server architecture. Explain the various components and its deployment 10
(b) Explain the relationship of all OO models with a diagram. 5
(c) Write a short note on : Traditional Approach to Design 5
 6. (a) What are fraud risks and state its prevention techniques 10
(b) Explain the activities done during feasibility analysis. Give the structure of feasibility report. 10
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T.E. Sem V - (CBCS) Comp)
(CM)

→ 25/05/2015

QP Code : 3323

(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) What are the design issues for the Layers ?
- b) Differentiate between Aloha and Slotted Aloha .
- c) Explain in short different framing Methods.
- d) How does the Token Bucket Algorithm works?
- e) Why does the data link protocol always put the CRC in a trailer rather than in a header ?

Q 2:

- a) Explain Sliding window Protocol using Go Back-N technique. [10]
- b) Describe the OSI Reference Model with a neat diagram. [10]

Q 3:

- a) What is the function of IP Protocol? Discuss its header format. [10]
- b) Discuss the quality of service parameters in computer network. [10]

Q 4:

- a) What is count to infinity problem in distance vector routing? Discuss in detail. [10]
- b) Explain three way handshake technique in TCP. [10]

Q 5:

- a) Explain the need for DNS and describe the protocol functioning. [10]
- b) Explain Explain CSMA Protocols. Explain how collisions are handled in CSMA/CD. [10]

Q 6: Write short notes on the following.

[5 X 4]

- a) Functions of Session Layer.
- b) Address Resolution Protocol (ARP).
- c) Berkeley Socket
- d) Differentiate between OSPF and BGP .

JP-Con. 10338-15.

J.E. (V) (CBCS) (Computer's)
Microprocessor

19/5/15.

QP Code : 3321

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) Draw and explain timing diagram for write operation in minimum mode of 8086. 5
 - B) List operating modes of 8253. 5
 - C) Write down features of Pentium processor. 5
 - D) Write the instruction issue algorithm used in Pentium. 5
- Q.2
- A) Explain protection mechanism used in 80386. 10
 - B) Write assembly language program for 8086 to reverse a string of 10 characters. 10
- Q.3
- A) Design 8086 microprocessor based system with following specification 10
 - a) Microprocessor 8086 working at 8 MHz in maximum mode
 - b) 32 KB EPROM using 16 KB chips
 - c) 16 KB SRAM using 8 KB chipsExplain the design along with memory address map.
 - B) Explain branch prediction logic used in Pentium. 10
- Q. 4
- A) i. Explain different data transfer modes of 8237 DMA controller. 05
 - A) ii. Explain Interfacing of 8259 with 8086 in minimum mode. 05
 - B) Differentiate between real mode and protected mode. 10
- Q. 5
- A) Compare 8086, 80386 and Pentium. 10
 - B) Draw architecture of Super SPARC processor and explain in short. 10
- Q. 6
- Write note on any 4. 20
- a) Data cache organization of Pentium.
 - b) State use of control flags of 8086
 - c) Data types supported by SPARC processor
 - d) Advantages of memory segmentation in 8086.
 - e) Mode 1 of 8255 for input operation