T.E Sem V (Computer) CBGS 7/12/2015

Structured and Object Oriented Analysis & Design (SOOAD))

QP Code : 5693

1. **Question No.1 is Compulsory.**
2. **Answer any three from the remaining questions.**
3. **Assume suitable data wherever necessary**

Time : 3 Hrs

Max Marks . 80

1: A) Compare Object Oriented and Structured Analysis.
B) What are the architectural relationships that can be shown in a class diagram? Give clear distinctions between them.
C) Explain the checklist to be considered for validating the requirements gathered.
D) What is the role of a System Analyst? **(4X5 =20)**

2. a) A local bank requires a system where customers may open accounts and perform the usual transactions on these account (Credit, debit and obtain the current balance) through a mobile app. The bank is also required to provide the government the value of its total assets. Write a system proposal for the same. **(10)**
b) Construct the sequence diagram and corresponding collaboration diagram for the use-case "Determine total Bank Assets". **(10)**

3. a) Write the steps for processing and choosing Requirements, Environment and Implementation alternatives. **(10)**

b) Explain with an example, how use case modeling is used to describe functional requirements. Identify the actors, scenario and use cases for the example. **(10)**

4. a) Draw three levels of DFD for a Supermarket App. **(10)**

A *Customer* can *Build Shopping List* by providing *Items details* and the details will be stored in the *Shopping Cart* database. The *Warehouse* database will also provide the *Items details* required to complete the process. A *Customer* can receive *Shopping list details* from the *View Shopping List* process and such details is provided by the *Shopping Cart* database. A *Customer* can receive *Items details* by performing the *Search Items* process. Customer provides an *Item name* for searching and the*item details* are returned from the *Warehouse* database after searched.

b) What are the general principles of UI design? Develop the Interface design elements for the Supermarket App given above. **(10)**

5 a) Explain the representation of Zachman Framework for an Enterprise. (10)

(b) Consider the Hospital Management System application with the following requirements:

(i) System should handle the in-patient, out-patient information through receptionist.

(ii) Doctors are allowed to view the patient history and give their prescription.

(iii) There should be a information system to provide the required information.

Give the state chart, component and deployment diagrams. (10)

6. a) What is a deployment diagram? Draw the deployment diagram for the shopping cart application selecting a suitable architecture for the same. (10)

b) Write a note on : Modeling Application Architecture for a web based Information System (10)

TE-Sem V (CBSGS) (Comp)
O.S.

18/11/2015

QP Code : **5567**

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

N. B. : (1) Question No. **1** is **compulsory**.
(2) Attempt any **three** out of the remaining **five** questions.

1. Attempt any **four** questions –
   (a) Differentiate between Monolithic and Microkernel. 5
   (b) Explain effect of page size on performance. 5
   (c) Draw and explain five state process models. 5
   (d) Explain disk cache. 5
   (e) Explain "chmod" command in UNIX. 5
   (f) What do you meant by 'Busy Waiting'? What is wrong with it? 5

2. (a) Explain in detail file management in UNIX. 10
   (b) Explain dining philosopher problem and solution to it. 10

3. (a) What is deadlock? Explain necessary and sufficient conditions to occur deadlock. What is the difference between Deadlock avoidance and prevention? 10
   (b) Consider tbe following set of processes with CPU burst time 10

Process	Burst Time	Arrival Time
P1	10	1
P2	04	2
P3	05	3
P4	03	4

   (i) Draw Gnatt chart for FCFS, SJF preemptive and Round Robin (Quantum = 03).Calculate average waiting time and average turnaround time.
   (ii) Explain which scheduling policy is adopted by Linux.

4. (a) What is Operating System? Explain different functions and objectives of operating system. 10
   (b) What is mutual exclusion? Give software approaches for mutual exclusion. 10

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5. (a) Consider following Snapshot at time T_0: 5 processes P_0 through P_4. 3 resource types A (10 units), B (5 units), and C (7 units). **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			

(i) Compute "Still Need" matrix?

(ii) Is system currently in safe or unsafe state? Why?

(b) Explain various I/O buffering techniques. **10**

6. (a) What is system calls of operating system? Explain any five system calls. **10**

(b) Explain techniques of disk scheduling. **10**

MP COMPUTERS T.E Sem V
24/11/15

QP Code : 5609

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

Note the following instructions.

1. Question no.1 is compulsory.
2. Solve any three questions out of remaining five questions.
3. Assume suitable data if necessary.

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1. (a) Write short note on 8288 Bus Controller. (5)
   (b) Explain the following instructions in 8086 : LAHF and STOSB (5)
   (c) Design interfacing of 8282 latches to 8086 system. (5)
   (d) Explain in brief Protection Mechanism in 80386DX Processor. (5)

2. (a) Explain Memory Management in details in 80386DX processor (10)
   (b) Design 8086 based system with following specifications (10)
   (i) 8086 in minimum mode working at 8MHz
   (ii) 32KB EPROM using 16KB devices.
   (iii) 64KB SRAM using 32KB devices.

3. (a) Explain with block diagram working of 8255 PPI. (10)
   (b) What is segmentation? What are the advantages of segmentation? (5)
   (c) Differentiate between minimum mode and maximum mode in 8086. (5)

4. (a) Explain branch prediction logic used in Pentium. (10)
   (b) Compare Pentium 2, Pentium 3 and Pentium 4 processors. (10)

5. (a) Explain different data transfer modes of 8237 DMA controller. (10)
   (b) Explain the architecture of Super SPARC processor with a neat diagram. (10)

6. Write short note on
   (a) 8087 Math Coprocessor. (5)
   (b) Generation of Reset signals in 8086 based system. (5)
   (c) Comparative Study of multicore i3, i5 and i7 processors. (5)
   (d) Mixed Language Programming. (5)

MD-Con. 8236-15.

T.E SEM VI
COMP
1/12/15

Computer Network

Q.P. Code : 5650

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

1. Question No 1 is compulsory.
2. Attempt any three out of the remaining five questions.

Q1. (a) Discuss the design issues for various layers
(b) Compare various types of network topologies **05**
(c) Differentiate between an IP address and a MAC or physical address. What is the need to map IP address to MAC address? Explain which protocol does this. Similarly give a protocol which does reverse mapping. **05**
(d) What is subnetting? What are the default subnet masks? Find the subnet address if the IP address is 129.31.72.24 and subnet mask is 255.255.192.0. **05**

Q2. (a) What is controlled access for collision control? Explain all the methods of controlled access. **10**
Q2. (b) What is the maximum window size allowed for selective repeat ARQ? Explain why with appropriate scenario. **10**

Q3. (a) What are the different types of routing algorithms? When would we prefer to use hierarchical routing over Link state routing? **10**

Q3. (b) What is traffic shaping? Explain leaky bucket algorithm and compare it with token bucket algorithm. **10**

Q4. (a) What are transport service primitives? Discuss in brief **10**
(b) Explain IPv4 header format in detail. If value in HLEN field is 1101 find the size of option and padding field? **10**

Q5 (a) What is congestion control? Explain various congestion prevention policies. **10**

Q5 (b) Write in brief about:
i) PPP Frame format **10**
ii) CSMA/CD

Q6. Write short notes on: (any two)
i) TCP connection management **20**
ii) Internetworking Devices
iii) Border Gateway Protocol
