1T00715 - T.E.(COMPUTER)(Sem V) (CBSGS) / 30303 - COMPUTER NETWORKS

Duration : 3 Hrs **Total Marks : 80**

N.B. : 1. Question No. 1 is Compulsory.
2. Attempt **any three** questions, from remaining **five** questions.
3. Figure to the right indicates full marks

Q.1.	A)	What are guided and unguided transmission media.	5
	B)	Compare various network topologies.	5
	C)	Why subnetting is required and how it is done in classful IP addressing.	5
	D)	Explain FTP and the two TCP Connections.	5
Q.2.	A)	Explain TCP/IP model with neat diagram and the functions of each layer.	10
	B)	Explain various Internetworking devices.	10
Q.3.	A)	What is the difference between static and dynamic routing ? Explain Distance Vector Routing with example.	10
	B)	What is framing? Explain various framing techniques.	10
Q.4.	A)	What are Berkley socket primitives? Explain in brief.	10
	B)	What is error detection and correction? Explain CRC with example.	10
Q.5.	A)	What is congestion control ? Explain open loop and closed loop congestion control.	10
	B)	Explain in brief – a) Telnet and SSH. b) TCP timers	10

Q.6. Write Short Note on (Any four) 20

(a) TCP segment header

(b) Bluetooth Architecture

(c) Aloha and its types

(d) SNMP

(e) Design issues for various layers

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1T00715 - T.E.(COMPUTER)(Sem V) (CBSGS) 30302 - MICROPROCESSOR

(3Hrs)

Max Marks: 80

NB: 1. Question No.1 Compulsory.
2. Solve any THREE from Q.2 to Q.6
3. Assume suitable data whenever necessary with justification.

Q1	Answer any FOUR questions		
	(A)	Explain programming model of 8086.	05
	(B)	Explain DAA and XLAT instructions of 8086 Processor.	05
	(C)	Explain control registers of 80386.	05
	(D)	Explain assembler directives.	05
	(E)	Draw and Explain Floating Point Pipeline for Pentium Processor.	05
2.	(A)	Explain PPI 8255 with block diagram.	10
	(B)	Draw and explain block diagram of 8254 – PIT.	10
Q3.	(A)	Design 8086 based system with following specifications. (1) 8086 working at 8MHz at minimum mode (2) 256KB RAM using 64KB X 8 device (3) 128KB EPROM using IC 27128.	10
	(B)	Explain architecture of 8086 Processor with example.	10
Q4.	(A)	What is multitasking? Explain how task switching is implemented on 80386 processor.	10
	(B)	Explain, in brief, protection mechanism implemented on 80386.	10
Q5.	(A)	Explain, with neat diagram, register window implementation on Sun Supersparc processor.	10
	(B)	Explain branch prediction logic of Pentium processor.	10
Q6.	Write short notes on		
	(A)	Page translation mechanism on 80386DX	05
	(B)	Register window on Supersparc processor	05
	(C)	Operating modes of 8254	05
	(D)	8086 addressing modes	05

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Q.P. Code: 22651

1T00715 - T.E.(COMPUTER)(Sem V) (CBSGS) / 30301 - OPERATING SYSTEMS

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

N.B. 1. Q.no.1 is **compulsory**
2. Attempt any **three** out of the remaining five questions

Q.1. (a) Explain the critical section problem in brief 5
(b) What do you mean by virtual memory? 5
(c) Explain the system components in Windows Architecture 5
(d) State any five system calls 5

Q.2. (a) Given the following queue - 95, 180, 34, 119, 11, 123, 62, 64, in FIFO order with Read-write head initially at the track 50 and the tail track being at 199, discuss the following disk scheduling algorithms- 10
i. FCFS ii. SSTF iii. SCAN iii. LOOK
(b) Explain the readers/writers problem. Suggest a solution for the same 10

Q.3. (a) Explain file management in UNIX 10
(b) What is deadlock? Explain the deadlock avoidance in detail 10

Q. 4. (a) Explain different page replacement policies with a suitable example 10
(b) Differentiate the following: 10
(i) Paging vs segmentation (ii) Monolithic vs Microkernel Operating System.

Q.5. (a) Consider the following set of processes, with the length of CPU burst in miliseconds 10

Process	Burst time	Priority
P1	8	4
P2	6	1
P3	1	2
P4	9	2
P5	3	3

The processes are assumed to have arrived in the order P1, P2, P3, P4, P5 all at time 0. Draw Gnatt charts for the following scheduling algorithms- FCFS, SJF, Non-preemptive priority and RR(quantum=1) and also calculate the turnaround time, average waiting time.

(b) Explain the hardware support for paging 10

Q.6. Write notes on the following: 20

(a) Thrashing and working set model
(b) State transition in UNIX
(c) I/O buffering techniques
(d) Semaphores.

Q.P. Code: 24565

(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 different types of system? What is role of system analyst in analyzing, designing and implementation of system? (**10**)
(b) Explain development of SRS document with suitable example. (**10**)

Q2. (a) What are the steps to draw DFD? Draw DFD (upto two levels) for withdrawing money from bank. (**10**)
(b) What is UML? Draw class diagram for library management system showing different relationships between classes. (**10**)

Q3. (a) Explain cohesion and coupling in the context of software design. Why and how these concepts are important for good software design? (**10**)
(b) What is feasibility analysis? Explain payback analysis with example. (**10**)

Q4. (a) How to identify use case and actors for use case diagram? Identify use cases & actors and draw use case diagram for car rental system. (**10**)
(b) Explain requirement gathering techniques used in system analysis. (**10**)

Q5. (a) Explain different elements of activity diagram with suitable example. (**10**)
(b)What is the purpose of sequence diagram? Draw sequence diagrams for approval/rejection of admission forms for eligible/non-eligible candidates. (**10**)
(**10**)

Q6. Write short notes (any two) (**20**)
a) User Interface Design
b) Modeling Application Architecture
c) Business Process Re-engineering (BPR)
d) System security and integrity measures

Sem IV, CMPN - CBSGS. Dec 18. 15/12/18

Paper / Subject Code: 38905 / THEORETICAL COMPUTER SCIENCE

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

N.B. (1)Question No. 1 is compulsory
(2) Attempt any three out of remaining five questions
(3) Assumptions made should be clearly stated

1. (a) Write short note on Myhill Nerode theorem 5
   (b) Differentiate between NFA and DFA. 5
   (c) State and explain Closure properties of Context Free Language 5
   (d) Explain Post Correspondence problem. 5
2. (a) Construct the NFA-ϵ
   i for the language in which strings starts and ends different letter over the set $\sum = \{ a, b \}$
   ii) for the R.E (01+2*) 10
   (b) Give and Explain formal definition of Pumping Lemma for Regular Language and prove that following language is not regular. 10
   $L=\{ a^n b^m \mid 1<=n<=m \}$
3. (a) Convert the given grammar into Griebach Normal Form 10
   S -> aSB| aA
   A -> Aa | Sa | a
   (b) Construct PDA for a language $L=\{wcw^R \mid w \in \{a,b\}$ and w^R is reverse of w} 10
4. (a) Construct TM to check palindrome over $\Sigma=\{0,1\}$ 10
   (b) Design a DFA which accepts all strings not having more than 2 a's over $\sum=\{a, b\}$ 10
5. (a) Convert (0+1) $(01)^*(0+\in)$ into NFA with ε-moves and obtain DFA. 10
   (b) Design Mealy Machine that accepts an input from $(0+1)^*$ if the input ends in 101, output A; if the input ends in 110, output B, otherwise C. then convert into Moore Machine. 10
6. (a) Draw a parse tree for the string "abaaba" for the CFG given by G where 10
   P= { S-> aSa
   S -> bSb
   S -> a |b |ε}.
   Also Determine whether the given CFG is ambiguous or not.
   (b) Write short note on following 10
   i) Halting problem
   ii) Rice's Theorem
