T2825 / T0498 MICROPROCESSOR

## E. Comp. -V E/sem-I/CBGs/Computer Q.P. Code: 581201 (3 Hours) Microprocedant (Total Marks: 10 Question No.1 is compulsory N.B.:(1)Answer any four questions from Q.No.2 to Q.No.5 (2)Figures to the right indicate full marks. (3) Assume suitable data if required. (4) 1. (a) What is memory segmentation? State advantages of memory segmentation. (b) What is GDT? Explain structure of GDT. 5 (c) Explain integer pipeline of Pentium processor? 5 5 (d) Briefly explain string instructions of 8086. 4 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) Explain DMA data transfer modes in brief. (b) Explain, with neat diagram, address translation mechanism implemented 10 10 on 80386DX. 4. (a) Explain, with neat diagram, cache memory organization is supported by 100 Pentium processor. (b) Draw and explain block diagram of Pentium processor. 10 5. (a) Draw and explain block diagram of SuperSpare processor. (b) Explain interrupt structure of 8086. 10 10 Write short note on: (a) Mixed language programming 5 (b) Virtual 86 mode of 80386DX 5 (c) Branch prediction logic

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(d) Control registers of 80386DX

## TE (comp) SEM I CBGS Operating Systems (3 Hours)

QP CODE: 581101

17/05/2017

Total Marks: 80

(7)

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. Compare the monolithic and microkernals	[5]
b. Explain the Internal and External Fragmentation	[5]
c. What is mutual exclusion? Explain its significance	[5]
d. What is a semaphore? Elaborate with example, the significance of semaphore	[5]
e. Explain the effect of page size on performance of Operating System	[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	de	adle	ock	? F	Exp	lair	1 th	e n	ece	ssa	ry a	and	Su	ffic	ient	con	ıditi	ons	for the deadlock.
Also sugg	est tec	hni	que	es to	av	70İ0	d de	ead)	oc.	KS.											[10]

Q.3.	a. Explain an algorithm for dining philosophers problem	[10]
	h Evylain the houless's -1 - 11 - 1	[10]
	b. Explain the banker's algorithm in detail.	[10]

Q. 4. a. Explain the hardware support for paging

b. Assume the following processes arrive for execution at the time indicated and the length of cpu burst time given in msec.

Job	Burst time	Priority	Arrival time
P1	10	5	0
P2	6	2	0
Р3	7	4	1
P4	4	1	1
P5	5	3	2

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 Round Robin (assume quantum=5 units)

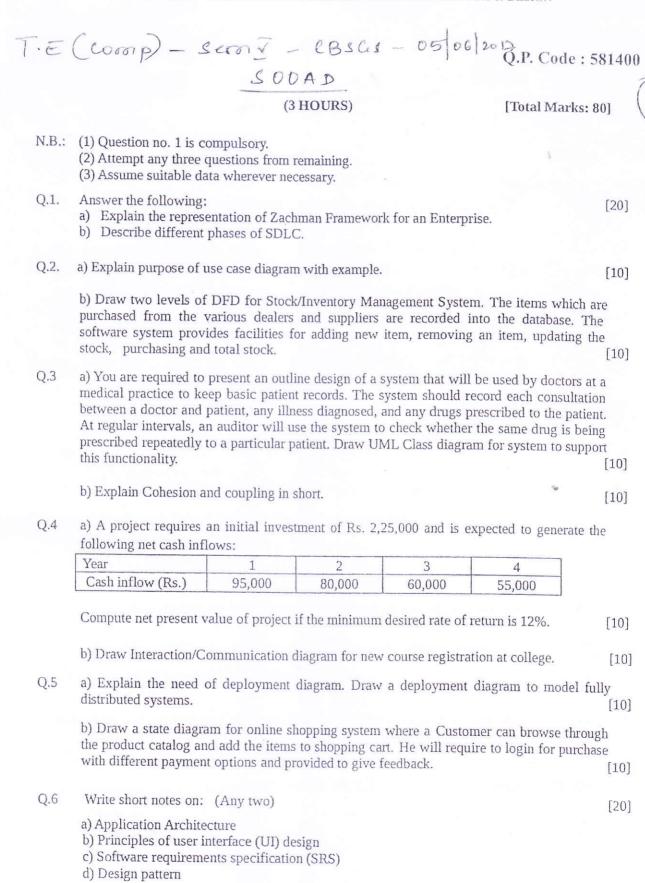
Q.5.	a. Explain the process transition diagram for UNIX operating system	[10]
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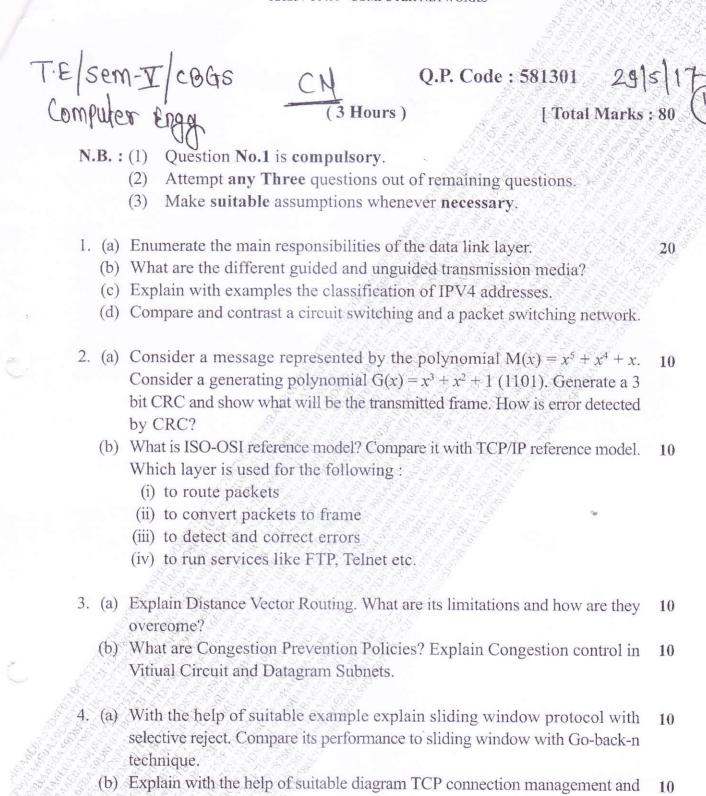
b. Compare the following Disk scheduling algorithms using appropriate example- SSTF, FCFS, SCAN, C-SCAN, LOOK [10]

## Q.6. Write notes on the following:

[20]

- a. Resource Allocation Graph
- b. Process Control Block
- c. System Components in Windows Architecture
- d. Scheduling in Linux system





TURN OVER

release.

## T.E/sem-I/CBGS Computer Epgg

CN<sub>2</sub>

Q.P. Code: 581301 29/5/17



- 5. (a) Explain 1-persistent, p-persistent and 0-persistent CSMA giving strong and weak points of each.
  - (b) What is subnetting? Given the class C network 192.168.10.0 use the subnet mask 255.255.255.192 to create subnets and answer the following:
    - (i) What is the number of subnets created?
    - (ii) How many hosts per subnet?
    - (iii) Calculate the IP address of the first host, the last host and the broadcast address of each subnet.
- 6. Write a short notes on the following (any two):

20

- (i) SNMP and MIB.
- (ii) Bluetooth Architecture
- (iii) Border Gateway Protocol