Examination:	May-June 2018	**Date:**	15-5-18
Branch:	Computer Engineering	**Subject:**	OS
Class/SEM:	TE/V	**Paper Code:**	39373

Examination:	May-June 2018	**Date:**	21-5-18
Branch:	Computer Engineering	**Subject:**	MICRO
Class/SEM:	TE/V	**Paper Code:**	21318

Examination:	May-June 2018	**Date:**	25-5-18
Branch:	Computer Engineering	**Subject:**	CN
Class/SEM:	TE/V	**Paper Code:**	24646

Examination:	May-June 2018	**Date:**	8/5/2018
Branch:	Computer Engineering	**Subject:**	SOOAD
Class/SEM:	TE/V	**Paper Code:**	37072

(Time: 3hrs)   (Marks: 80)

N.B.
1. Question 1 is compulsory.
2. Attempt any three from remaining five questions.
3. Figure in right indicate full marks

Q 1	Attempt the following (any four)	
	a. Define Operating System? What are its objectives?	5
	b. Explain system call and enlist its types.	5
	c. Differentiate short and medium-term scheduler.	5
	d. What are advantages of multiprogramming?	5
	e. State characteristics of good process scheduler.	5
Q2. A	What is deadlock? Explain necessary and sufficient conditions for a deadlock to occur.	10
B	Explain in detail page table structures.	10
Q3. A	Explain LINUX operating system with kernel, memory management and IO management.	10
B		10

	R1	R2	R3
P1	3	2	2
P2	6	1	3
P3	3	1	4
P4	4	2	2

Claim matrix C

	R1	R2	R3
P1	1	0	0
P2	6	1	2
P3	2	1	1
P4	0	0	2

Allocation matrix A

R1	R2	R3
9	3	6

Resource vector R

Consider above snap shot of the system
1. Calculate available vector 2. Calculate need matrix 3. Calculate safe sequence 4. Is system in safe state?

Q4. A	Explain the different allocation methods with reference to file system.	10
B	Explain algorithm to avoid deadlock in dinning philosopher's problem.	10
Q5. A	Compare the following disk scheduling algorithms using appropriate example – SSTF,FCFS,SCAN,C-SCAN,LOOK	10
B	What is mutual exclusion? Give software approaches for mutual exclusion.	10
Q6. A	Explain need of page replacement. Explain optimal page replacement policy with example.	10
B	Explain UNIX file system	10

Q. P. Code: 21318

(Time: 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.   Solve any FOUR.

  (A)   Explain Memory banks for 8086 Processor   (5)

  (B)   Draw and Explain Floating Point Pipeline for Pentium Processor.   (5)

  (C)   Explain Multitasking and Protection for 80386 processor   (5)

  (D)   Explain Flag Register bits of 8086.   (5)

  (E)   Explain Virtual Mode (VM86) 80386 Processor.   (5)

Q2. (A)   Explain Interrupt Structure of 8086 Processor.   (10)

  (B)   Explain PPI 8255 with block diagram.   (10)

Q3. (A)   Draw and Explain write operation timing diagram for maximum mode.   (10)

  (B)   Explain Operating Modes of PIC 8259.   (10)

Q4. (A)   Explain following instructions.   (10)
    DAA, AAA, XLAT, LAHF

  (B)   Explain Segment Descriptor of 80386 Processor.   (10)

Q5. (A)   Explain Gate type of descriptors.   (10)

  (B)   Explain Data Cache architecture for Pentium Processor.   (10)

Q6. (A)   Explain SPARC Processor with block diagram.   (10)

  (B)   Explain with block diagram PIT 8254   (10)

Duration – 3 hours

Maximum Marks - 80

Note:

1. Question No 1 is compulsory.
2. Attempt any 3 questions from the remaining 5 questions.
3. Draw neat diagrams wherever necessary.

Q.No. 1   Explain in Brief:

20

a. Explain the method to find number check bits required to correct single bit error for a 10 bit message and compute the check bits for 11100 00101.

b. Encode the message 101111100001 using binary encoding, Manchester encoding and differential Manchester encoding.

c. Find the shortest path between A and D using Dijkstra Algorithm.
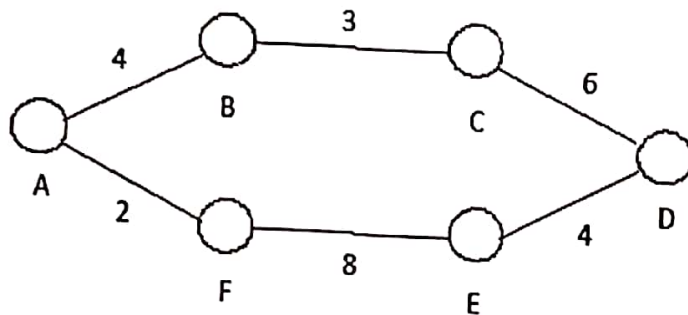
d. What are the different world wide unique identifiers? Explain the components of Uniform Resource Locators.

Q.No. 2(a)   Explain how a strong Generator Polynomial is formed. Give the Algorithm for computing the checksum.   10

Q.No. 2(b)   Explain any two collision free protocols   10

Q.No. 3(a)   Explain the reasons for congestion in a network. Explain open loop congestion control methods.   10

Q.No. 3(b)   Explain TCP ip reference model and compare it with OSI reference model.   10

Q.No. 4(a)   Explain how the value of 'n' is decided in an n bit sliding window protocol. Explain the advantages of Selective repeat over go-back n protocol.   10

Q.No. 4(b) Prove that the slotted ALOHA performs better than Pure ALOHA.   10

Q.No. 5(a) Compare Guided media w.r.t unguided media   10
Q.No. 5(b) Compare Routing protocols RIP, OSPF and BGP   10

Q.No. 6 Give Short notes on any two   20
  a. DNS
  b. SNMP
  c. Sockets and Socket Programming

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(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 Unified Modeling Language (UML)? Explain need of UML with (10) examples.

(b) Explain the development of SRS document for any suitable case study. (10)

Q2. (a) Explain different steps to draw DFD with suitable example. (10)

(b) Draw and explain class diagram for car rental management system. (10)

Q3. (a) Explain types of cohesion and coupling in 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 (10) cases & actors and draw use case diagram for online book shopping.

(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 use of sequence diagram in system design? Draw sequence (10) diagram for ticket vending machine.

Q6. Attempt the following (any two) (20)

a) User Interface Design
b) Component and deployment diagram
c) Zachman framework
d) System security and integrity measures