PCS201C

Second Semester M. Tech. Examination, MAY/JUNE 2009
OPERATING SYSTEM AND LINUX INTERNALS

Duration : 3 Hrs ***MODEL QUESTION PAPER*** ***Max Marks 100***

Answer any five full questions choosing at least one from each unit.

UNIT I

1. a. Write in detail about different Operating system strategies . **10 Marks**.
   b. Differentiate between abstract resource and physical resource examples to each. **10 Marks.**

2. a. What are two basic responsibilities of operating system and Explain functions of operating system **10 Marks.**

b. What are the different I/O strategies? Brief one of the strategies. How do you optimize the access time on disks? List the steps of one of the methods. **10 Marks.**

UNIT II

3. a. Write about process scheduler organization and context switching in detail. **10 Marks.**

   b. Explain what you mean by preemptive scheduling strategy and non preemptive scheduling strategy give example any on scheduling strategy. **10 Marks**

4. a. What is a semaphore? List different types of semaphores and their implementations. **6 Marks**

   b. What is the dining philosopher's problem? Give AND synchronization to solve the problem for n=2. **6 Marks**
   c. What is Deadlock? List the conditions for Deadlock and the steps to be taken to overcome each . **8 Marks**

UNIT III

5. a. Give the external view of Memory manager and write about address space management **10 Marks**

   b. Explain two memory allocation strategies in detail. **10 Marks**

6. a. Give explanation to static and dynamic paging algorithms with example to each. **12 Marks**
   b. Write in detail about block management in detail. **8 Marks**

UNIT IV

7. a. Write about kernel organization in Linux and its services. **12 Marks**
   b. Write in detail about Linux Memory management . **8 Marks**

8. write notes on **10+10 =20 Marks**
   i. Static and dynamic Drivers in LINUX
   ii. PROC and Ext2 File System

Model Question Paper

Second Semester M.Tech CSE (Autonomous)
Software Engineering

Max.Marks: 100 **Duration: 3hrs**

Note: Answer any five full questions choosing atleast one from each unit.

Unit-I

Q.1 a) Compare various software development process models. (10)

b) Giving examples explain how the software delivery is a challenge. (10)

Q.2 a) Explain the structure of software requirement document proposed by IEEE. (10)

b) Differentiate between functional and non-functional requirements by giving examples. (10)

Unit-II

Q.3 a) Using examples, explain the differences between an object and object class. (10)

b) Explain various architectural models that may be used to develop a software. (10)

Q.4 a) What are the advantages of graphical information presentation? (10)

b) What are the differences between evolutionary and throwaway prototypes? (10)

Unit-III

Q.5 a) What are the differences between verification and validation? (08)

b) What is software inspection? What are its advantages? (08)

c) What is cleanroom software development? (04)

Q.6 a) What is equivalence partitioning? Give an example. (08)

b) What are the two important phases of testing and explain them? (08)

c) What is regression testing? (04)

Unit-IV

Q.7 a) What are the factors governing staff selection? (10)

b) Explain P-CMM. (10)

Q.8 a) What are the factors affecting software cost estimation? (08)

b) How COCOMO helps to estimate the cost of a software? (12)

PCS203C: Computer Networks
Model Question Paper

Duration: 3 Hours **Max Marks: 100**

Note : Answer any five full questions selecting atleast one from each unit

UNIT I

1. a) What is a protocol? Describe protocol graph and hence bring out the significance of network architecture. (10)

b)Calculate the total time required to transfer a 1.5 MB file in the following cases, assuming a RTT of 80 ms, a packet size of 1KB data, and an initial 2× RTT of "handshaking" before data is sent.

i) The bandwidth is 10 Mbps and data packets can be sent continuously

ii) The bandwidth is 10 Mbps, but after we finish sending each data packet we must wait one RTT before sending the next.

iii) The link allows infinitely fast transmit, but limits bandwidth such that only 20 packets can be sent per RTT. (10)

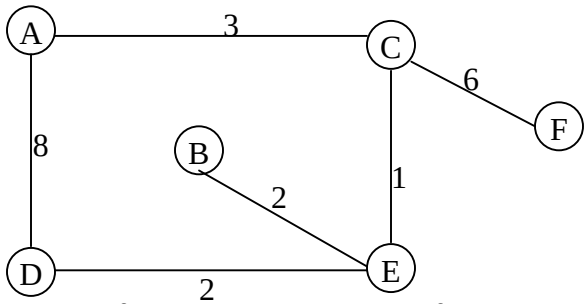
2. a) What is encoding? Describe the NRZI encoding, Manchester encoding and 4B/ 5B encoding using appropriate diagrams. Also highlight the advantages and disadvantages of each. (10)

b)How is error detection handled in computer networks? Describe the following error detection methodologies, two dimensional parity, Internet checksum algorithm, cyclic redundancy check. (10)

UNIT II

3 a) What is a spanning tree algorithm? Give and explain the spanning tree algorithm using an example. (10)

b) For the Network given in the following figure, Give the datagram forwarding table for each node. The links are labeled with relative costs. (6)



c) Give the frame relay packet format and explain each fields. (4)

4 a) Give and explain the ATM cell format. (4)

b) Give the Ipv4 header format and hence explain the functionality of each field. (8)

c) Describe the salient features of the following protocols (8)

i) ARP

ii) DHCP

UNIT III

5 a) What is Multi Protocol Label Switching? Hence describe Destination Based Forwarding. (10)

b)Explain the Transmission Control Protocol (TCP) using the state transition diagram. (10)

6 a) Describe the Protocol Independent Multicasting (PIM), the multicast routing methodology. (10)

b) Design a Simple UDP based protocol for retrieving files from the server. No authentication is to be provided. Stop and wait transmission of data may be used. Your protocol should address the following issues:

i) Duplication of first packet should not duplicate the connection.

ii) Loss of final ACK should not necessarily leave the server in doubt as to whether the transfer succeeded

iii) A late arriving packet from a past connection should not be interpretable as part of current connection. (10)

UNIT IV

7 a)Explain the Real time Transport Protocol. . (6)

b) Write notes on the following (10)

i) Electronic Mail

ii) Name Service

c) What are overlay networks? Explain. (4)

8 a) Briefly describe RMON and RMONV2. Hence highlight the difference (10)

b) Give and explain the network monitoring and control mechanism through SNMP (10)

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Second Semester M.Tech Model Question Paper

Artificial Intelligence and Expert Systems

Time: 3 hrs. Max. Marks: 100

Note: *Answer any FIVE full question choosing atleast one question from each unit.*

Unit I

1 a. Define AI. Explain various characteristics of AI. (10 Marks)

b. A fanner with his wolf, goat and cabbage arrives at the bank A of the river they wish to cross. There is a boat at the bank A of river, which the fanner only can row. The boat can carry only two things including rower at a time. If the wolf is ever left with the goat the wolf will eat the goat. Also if the goat is left alone with cabbage the goat will eat the cabbage. Represent the solution using state space representation. (crossing river from bank A to bank B). (10 Marks)

2 a. Write the algorithm of steepest ascent hill climbing what are the drawbacks of it? How to overcome the drawbacks. (10 Marks)

b. What do you mean by heuristic? Explain the importance of heuristic function with an example. (10 Marks)

Unit II

3 a. With suitable examples explain the issues in representation of knowledge. (08 Marks)

b. Define resolution. Given the following facts, answer the question Did Markus alive now? Using resolution. (12 Marks)

i) Markus was a man
ii) Markus was a Pompeian
iii) Markus was born in 40AD
iv) All men are mortal
v) All Pompeians died when volcano erupted in 79AD
vi) No mortal lives longer than 150 years
vii) It is now 2006
viii) Alive means not dead.

4 a. Construct semantic net flowered representation of the following:
i) Mary gave the green flowered vase to her favorite cousin.
ii) Every dog has bitten a mail carrier. (05 Marks)

b. Show a conceptual dependency representation of the following sentences:
i) Jatayu told Rama and Ravana carried away Sita from Leafhouse to Lanka.
ii) Inspector caught hold of thief shouted at him and dragged him to the police station. (05 Marks)

c. Construct a script for going to a movie from the viewpoint of the movie goer. (10 Marks)

Unit III

5 a. Briefly explain Bayesian method of probabilistic .reasonmg. Also discuss its limitations. (08 Marks)
b. Compare monotonic and nonmonotonic reasoning. (04 Marks)
c. Explain Minimax search procedure with a neat illustration. (08 Marks)

6 a. With a neat block diagram of a typical expert system explain the functions of various components and their interactions. (10 Marks)
b. List out the benefits of expert system. (04 Marks)
c. Explain briefly any three types of expert systems. (06 Marks)

Unit IV

7 a. What do you mean by learning? Explain the following learning mechanisms:
i) Rote learning
ii) Explanation based learning. (10 Marks)
b. Explain in detail the components of planning with an example. (10 Marks)

8 a. Define understanding. List out the major factors that makes understanding hard. (05 Marks)
b. Briefly explain various steps in natural language understanding process. (08 Marks)
c. Discuss perception as applied to image processing. (07 Marks)

Model Question Paper
MTech in Computer Science and Engineering
II Semester
Digital Image Processing and Computer Vision (PCS003E)

Max Marks: 100 **Duration: 3 Hrs**

Instructions

- **Answer any five full questions choosing atleast one question from each unit.**

UNIT I

Q:1 a) Define the term digital image. Explain three types of images. Give examples for each type. (10)

b) What is digital image processing? Explain fundamental steps in digital image processing. (10)

Q:2 a) Explain sampling and quantization process during digitization of an image. (10)

b) Explain basic relationships between pixels. (10)

UNIT II

Q:3 a) Explain basic gray level transformations. (10)

b) What is histogram of an image? Explain histogram equalization. (10)

Q:4 a) Explain important properties of 2 dimensional Fourier Transform. (10)

b) Explain smoothing frequency domain filters. (10)

UNIT III

Q:5 a) What is image restoration? Explain restoration/degradation model for continuous functions. (10)

b) Discuss the adaptive median filter to restore an image in the presence of noise only. (10)

Q:6 a) Discuss the functional block diagram for pseudocolor image processing.(10)

b) Explain color image segmentation. (10)

UNIT IV

Q:7 a) Explain discrete wavelet transform in one dimension. (10)

b) Explain Dilation and Erosion morphological operators. (10)

Q:8 Write short notes on the following; (20)

a) Region based segmentation
b) Image Compression Models
c) Opening and Closing
d) Object recognition using structural methods.

Second Semester M. Tech. Examination, MAY/JUNE 2009
DISTRIBUTED SYSTEMS

Duration : 3 Hrs

Max Marks 100

Answer any five full questions choosing at least one from each unit.

UNIT I

l. a. State and explain the challenges of distributed systems. **10 Marks**

b. Explain Internet model and wireless model of Distributed system **10 Marks**

2. a. Describe failure and security models of distributed systems and write about all types of failures in it. **10 Marks**

b. Explain UDP Datagram and TCP stream communication in distributed system with Java API examples for the implementation. **10 Marks**

UNIT II

3.a. Give distributed object model and Explain the design issues in Remote method Invocation . **08 Marks**

b. Give all the details of i) RPC (Remote procedure call) **6+6=12 Marks**
ii) Characteristics of Events and Types of Events.

4. a. Explain the Core functionality and core components of an operating system for distributed system. **10 Marks**

b. Write in detail about multithreaded server architecture . **10 Marks**

UNIT III

5. a . Name all modules of file system and file system operations and write in detail about distributed file system requirements. **08 Marks**

b. Write a notes on i) Name services **6+6=12 Marks**
ii) Directory and discovery services.

6. a. What is Distributed Mutual exclusion ? Write in detail about ring based mutual exclusion algorithm. **10 Marks**

b.What is an Election algorithm ? explain any one election algorithm in detail. **10 Marks**

UNIT IV

7. a. What is distributed dead lock ? write about deadlock prevention and deadlock detection. **10 Marks**
b. Explain about Lost update problem in concurrent transactions with suitable example. **10 Marks**

8. Write notes on **4X5=20 Marks**

i. Flat and nested distributed transaction.
ii. Distributed Multimedia systems
iii. Distributed shared memory system.
iv. Quality of service management.