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SUBJECT CODE NO:- K-8003
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E. (Comp.Sci.& Engg.) Examination Oct/Nov 2016
Internal of Operating System
(Revised)

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B i) Solve any two questions from each section.

Section A

Q.1	a)	Explain windows architecture in detail?	10
	b)	What is heap manager? Explain the role of heap manager in detail.	10
Q.2	a)	What is system call in Linux? Describe flow diagram of a system call.	10
	b)	Explain how interrupts are handled in Linux?	10
Q.3	a)	Explain lifecycle of windows Azure service in detail.	10
	b)	How Azure Hypervisor is deployed in Non-Microsoft data centres.	10

Section B

Q.4	a)	What is multicore processor? Explain multicore processor in detail?	10
	b)	Explain the necessity of parallel architecture? Describe parallelization process in detail.	10
Q.5	a)	What is RTOs? Explain different issues of RTOs?	10
	b)	Compare and contrast RTOs with GPOS?	05
	c)	Briefly describe the issues of EOS.	05
Q.6	a)	Write short notes (any four)	20

i) Windows Vs. Linux security
ii) Security auditing mechanism in windows
iii) Linux security components
iv) Account rights and policy
v) Security ratings

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SUBJECT CODE NO:- K-8041
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E. (CSE/SE) Examination Oct/Nov 2016
Performance Analysis & Simulation
(Revised)

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B i) Attempt any two questions from section A & section B each.

Section A

Q.1 a) Consider the problem of comparing two different congestion control algorithms for computer networks. Briefly describe the system & explain. 10
   i) Services
   ii) Performance metric
   iii) System parameters
   iv) Workload parameters

   b) Define Test workload. Explain the following test workloads in detail. 10
   i) Application Benchmark
   ii) Instruction mixes
   iii) Synthetic programs
   iv) Kernels

Q.2 a) Explain Windows NT architecture in detail. 10
   b) Explain the common mistakes observed in performance evaluation. Also state the checklist to avoid the common mistakes. 10

Q.3 a) Compare software and hardware monitors. Also discuss the issues in software monitor design. 10
   b) Write a short note on simulation and modelling of LAN. 10

Section B

Q.4 a) Explain in detail the steps involved in the simulation study. 10
   b) What is the independence property of Random numbers? Explain the Poker test with appropriate example. 10

Q.5 a) Explain the validation process of models with the following. 10
   i) Face validity
   ii) Validating input-output transformation using historical data & Turing test.

   b) Define simulation. Discuss when simulation is appropriate and not appropriate. Discuss the draw backs of simulation 10

Q.6 a) Write a short note on model verification and validation. 10
   b) Explain the properties of random numbers. Also explain the linear Longruential generator in detail. Use the linear congruential method to generate sequence of random numbers with X_0=27, a=17, c=43 & m=100 10

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SUBJECT CODE NO:- K-8091
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E. (CSE/SE) Examination Oct/Nov 2016
Elective-II: Object Oriented System & Design
(Revised)

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B i) Assume suitable data wherever required.
ii) Solve any two questions from each section.
iii) Answer should be precise.

Section A

Q.1	a)	Explain and compare algorithmic and object oriented decomposition.	10
	b)	Explain about conceptual model of the UML.	10
Q.2	a)	What is CRC? How is it used to identify classes? Explain with an example.	10
	b)	How to construct a domain model using a class diagram.	10
Q.3	a)	Explain steps to write good use cases.	10
	b)	What is meant by use cases? Explain the use case relationships with example.	10

Section B

Q.4	a)	Explain structured control operators in sequence diagram.	10
	b)	Enumerate the steps to model a workflow with reference to activity diagram.	10
Q.5	a)	Create a communication diagram view of the design model.	10
	b)	Explain catalog of design pattern.	10
Q.6	a)	List design patters in behavioural design pattern. Explain any one behavioural design pattern in detail.	10
	b)	List design patterns in creational design pattern. Explain any one creational design pattern in detail.	10

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SUBJECT CODE NO:- K-8143

FACULTY OF ENGINEERING AND TECHNOLOGY

M.E. (Comp.Sci.& Engg.) Examination Oct/Nov 2016

Machine Learning

(Revised)

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
I. Solve any two questions from each section.
II. Assume suitable data if necessary and state it clearly.

Section A

Q.1 a) Explain the candidate elimination algorithm with following example. 10

origin	Manufacturer	color	Decode	Type	Example Type
Japan	Honda	Blue	1980	Economy	positive
Japan	Toyota	Green	1970	Sports	Negative
Japan	Toyota	Blue	1990	Economy	positive
USA	Chryler	Red	1980	Economy	Negative
Japan	Honda	white	1980	Economy	positive

b) What is the role of a function approximation algorithm? How does learner system estimate training values and adjusts weights while learning? 10

Q.2 a) What is the procedure of building Decision Tree using ID3 algorithm with Gain and Entropy. Illustrate with example. 12

b) Explain perceptron and Delta training rule. 08

Q.3 a) What are the issues in Decision tree learning? How they are overcome? 10

b) Explain how back propagation algorithm works for multilayer feed forward network. 10

Section B

Q.4 a) Why it is necessary to estimate the accuracy of hypothesis. Explain procedure to estimate difference in error between two learning methods. 10

b) Explain cross-over and mutation operations in the genetic algorithm and state their significance. 06

c) Explain the following terms with reference to computational learning. 04
I. Training error.
II. True error.

Q.5 a) Enumerate the steps in the k-NN clustering algorithm. 10

b) With the help of block diagram explain the probably approximately correct (PAC) Learning model. 05

c) Explain salient features of Genetic algorithm. 05

Q.6 a) Explain in brief. 10
I. Central Limit Theorem.
II. Binomial distribution.

b) Explain Naive Bayes classifier with example. 10

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SUBJECT CODE NO:- K-8161
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E. (Comp. Sci.& Engg.) Examination Oct/Nov 2016
Advanced Database Mgt. System
(Revised)

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B i) Solve 2 questions from each section.

Section A

Q.1	A)	What are long duration transactions? What are the adverse effects of following concurrency protocols on long duration transactions? a) Time-stamp based protocols b) Validation protocols	10
	B)	Explain why it may be impractical to require serializability for long-duration transactions?	10
Q.2	A)	What is shared-Disk architecture? Explain with a neat sketch. What are its benefits and limitations?	10
	B)	Consider a bank that has a collection of sites, each running a database system. Suppose the only way the databases interact is by electronic transfer of money between themselves. Would such a system qualify as a distributed database? Why?	10
Q.3	A)	What is fragment of a relation? What are the main types of fragments? Why are fragments a useful concept in distributed database design?	10
	B)	Explain various DDBMS software functions in addition to those of a centralized DBMS.	10

Section – B

Q.4	A)	Describe the following OQL concepts: database entry points, path expressions, iterator variables, named queries (views), aggregate functions.	10
	B)	What is the difference between structured and unstructured complex objects?	10
Q.5	A)	Why are scripting languages popular for programming Web applications? Where in the three-tier architecture does a PHP program execute? Where does a JavaScript program execute?	15
	B)	What are the differences between the use of tags in XML versus HTML?	05
Q.6	A)	Explain various Mobile Database Recovery schemes in detail.	10
	B)	Explain in detail the MMDBMS Architecture.	10

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SUBJECT CODE NO:- K-8179
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E. (Comp. Sci. & Engg.) Examination Oct/Nov 2016
Advanced Algorithm
(Revised)

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B i) Attempt any two questions from each section.

Section A

Q.1 a) Solve the following rod cutting problem using dynamic programming for a rod of length 4. 12

Length	1	2	3	4	5	6	7	8
Price	1	5	8	9	10	17	17	20

b) Explain hiring problem using randomized algorithm. 08

Q.2 a) Explain maximum flow problem by taking suitable graph. 10

b) How to measure performance of an algorithm. Compute complexity of binary search method. 10

Q.3 a) Sort the given data using heap sort. Comment on the complexity. 10
{B, I, N, A, R, Y, S, E, A, R, C, H, T, R, E, E}

b) Explain divide & conquer method by applying it to do sorting using quick sort. 10

Section B

Q.4 a) Find GCD (2252, 120) & explain use of extended Euclid's algorithm. 08

b) Explain literature FFT. 06

c) Explain polynomial multiplication & division. 06

Q.5 a) Prove that DHC is NP-complete for the following expression. 12
$(x_1 + x_2 + x_3 + x_4)(x_2 + x_3)(x_1 + x_2)$

b) Prove that clique is NP-complete. 08

Q.6 a) Explain Rabin-Karp algorithm with an example. 10

b) Prove that feedback edge set is NP-complete. 10

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SUBJECT CODE NO:- K-8198
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E. (CSE/SE) Examination Oct/Nov 2016
Computer Network proto. Desi.F82 (EL-1 on SE)
(Revised)

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B i) Attempt any two questions from each section.
ii) Please be specific while writing answer.

Section- A

Q.1 a) Explain following terms 10
a) Poisson process
b) Exponential process
c) Deterministic process
d) Non deterministic process
e) Ensemble Average

b) What is correlation? also explain autocorrelation function & its physical significance 10

Q.2 a) What is markov chain? explain how to derive transition matrix of markov chain. 10

b) What is physical significance of Eigen values & Eigen vectors? How they are useful in computer network protocol design? 10

Q.3 a) Derive model for M/M/1, queue 10

b) Explain performance parameters with necessary derivation of M/M/1/B queue 10

Section –B

Q.4 a) Derive leaky bucker performance for M^m/M/1/B Case. 10

b) Derive the model of Token bucket algorithm. 10

Q.5 a) Model go-back n protocol 10

b) What is auto regressive model and continuous time model 10

Q.6 a) Write difference between Rate based and credit based scheduling ,also explain packet dropping policy. 10

b) Explain weighted round robin scheduling algorithm. 10

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SUBJECT CODE NO:- K-8227

FACULTY OF ENGINEERING AND TECHNOLOGY

M.E. (Comp.Sci.& Engg.) Examination Oct/Nov 2016

El-1-Remote Sensing

(Revised)

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1) Solve any two questions from each section.
2) Assume necessary data if necessary.

Section A

Q.1	a)	Explain Electromagnetic spectrum in detail what are the major wavelength ranges used for remote sensing application? Explain	10
	b)	What is spectral signature? Explain spectral signature curve with reference to water, soil, vegetation and snow.	10
Q.2	a)	Explain different types of resolution used in satellite sensors in detail.	12
	b)	What type of orbits does remote sensing satellite have to be in to acquire images? Why?	04
	c)	Differentiate between active and passive sensors with example.	04
Q.3	a)	What are the main differences between multispectral and hyper spectral remote sensing? Explain with example.	08
	b)	What is thermal remote sensing? Explain any two real time application which uses thermal remote sensing.	08
	c)	What is true color composite and false color composite.	04

Section B

Q.4	a)	Why do we analyze image digitally? List some advantages and disadvantages of digital image analysis.	06
	b)	Identify the basic elements of object interpretation. Explain how they can be used when interpreting a remote sensing image.	08
	c)	Explain different color models.	06
Q.5	a)	What are the steps involved in supervised and unsupervised image classification? Explain in detail.	12
	b)	What is fuzzy classification?	04
	c)	Explain principal components analysis with reference to remote sensing.	04
Q.6	a)	Explain different methods to estimate accuracy of remotely sensed data.	08
	b)	What are spectral vegetation indices? How they are useful in Remote Sensing?	04
	c)	Which are different approaches of measuring errors in classified images? Explain any one approach in detail.	08

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