Total No. of Printed Pages:2

SUBJECT CODE NO:- H-489
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (CSE)
Digital Image Processing
(REVISED)

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

Please check whether you have got the right question paper.

N.B
1. Q.No.1 and Q.No.6 are compulsory.
2. Attempt any two questions from the remaining questions from each section.
3. Assume suitable data if necessary.

Section A

Q.1 Answer the following: (any five) 10
a) What is image negation?
b) Define DCT.
c) Explain low pass filters.
d) What is image enhancement?
e) What is image compression?
f) Define source encoder.
g) What is log transformation?
h) Explain Euclidean distance?

Q.2 a) Explain fundamental steps in digital image processing with neat diagram. 08

b) What is image histogram? Derive histogram equalization. 07

Q.3 a) What are the different image sharpening spatial filters? 08

b) Explain image enhancement in frequency domain along with the filter transfer function for each of the low pass filter. 07

Q.4 a) Explain LZW coding technique with example. 08

b) What is redundancy? Explain different types of redundancies. 07

Q.5 Write short notes on: (any three) 15
a) Fidelity criteria
b) Order statistical filters
c) High pass filters
d) Image sampling and quantization

Section B

Q.6 Answer any five of the following: 10

a) Define image segmentation.
b) What is multilevel thresholding?
c) What is thinning effect?
d) Define edge.
e) Define chain code.
f) Define image opening and closing.
g) What is color complement?
h) Define brightness.

Q.7 a) Explain edge detection with proper example. 08

b) Explain region growing for image segmentation. 07

Q.8 a) What is dilation and erosion in Morphological image processing explain with example. 08

b) Explain different color transformations. 07

Q.9 a) Differentiate between boundary descriptors and regional descriptors. 08

b) Explain how the topological descriptors can be used for region description. 07

Q.10 Write short notes on: (any three) 15

a) Color models
b) Signatures
c) Hit or miss transformation
d) Region split and merge technique

Total No. of Printed Pages:2

SUBJECT CODE NO: H-161
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (CSE/IT)
Computer Networks - II
(REVISED)

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

Please check whether you have got the right question paper.

N.B i) Q.No.1 from section A and Q.No.6 from section B are compulsory.
ii) Attempt any two questions from the remaining questions in each section.

SECTION -A

Q.1 Attempt any five questions. 10
a. Discuss the error control and flow control services of network layer.
b. What is IP address? List the classes of IP address.
c. What is traffic shaping?
d. What is QoS?
e. What is RSVP?
f. What is expedited forwarding?
g. What is packet fragmentation?

Q.2 a. Explain network address translation in detail. 07
b. What are the different integrated services? Explain in detail. 08

Q.3 a. Explain congestion control in detail. 07
b. Explain ATM LAN architecture. 08

Q.4 a. Explain count-infinity problem in DVR. 07
b. Explain leaky bucket congestion control algorithm with its disadvantages. 08

Q.5 Write short note on any three. 15
a. OSPF
b. Data traffic
c. Client server model.
d. Scheduling.

SECTION -B

Q.6 Attempt any five questions. 10
a. What is node to node delivery?
b. What is the role of mail transfer agent in TCP?
c. What is the sequence number in TCP segment?
d. What is remote logging?
e. Write RTP message types.
f. Write primitives of simple transport service.
g. Which protocol is used for email?

Q.7	a.	Explain stream control transmission protocol in detail.	07
	b.	Explain resolution of DNS messages.	08
Q.8	a.	Explain session initiation protocol (SIP) in detail.	07
	b.	What is UDP? How it is different than TCP/IP?	08
Q.9	a.	What is name space? Explain flat name space and hierarchical name space.	07
	b.	Explain real time transport protocol in detail.	08

Q.10 Write a short notes on <u>any three</u>. 15

a. Connection oriented services.
b. Electronic mail.
c. Process to process delivery
d. Types of record.

Total No. of Printed Pages:2

SUBJECT CODE NO: H-126
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (CSE/IT)
Design & Analysis of Algorithms
(REVISED)

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

Please check whether you have got the right question paper.

N.B i) Q.1 & Q.6 are compulsory.
ii) Solve any two questions from the remaining each section.

Section A

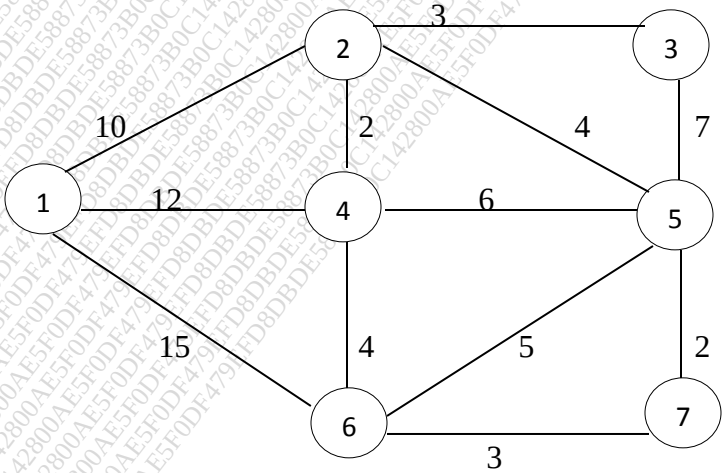
Q.1 Solve any five questions: 10
a) Write characteristics of an algorithm.
b) Explain greedy method.
c) Explain any one tree traversal technique with an example.
d) Define feasible and optimal solution.
e) Define asymptotic notation.
f) Write an iterative function to find sum of 'n' numbers.

Q.2 a) Find an optimal placement for 13 programs on three tapes To, T1 & T2 where the programs are of lengths: {12, 5, 8, 32, 7, 5, 18, 26, 4, 3, 11, 10, 6} 08
b) What is searching? Explain binary search using divide & conquer. 07

Q.3 a) Explain quick sort using the given data and comment on its time complexity. 08
{50, 50, 60, 60, 40, 40, 30, 30, 20, 20}
b) Explain heap sort with an example. 07

Q.4 a) Explain Strassen's matrix multiplications. 08
b) Explain optimal merge patterns. 07

Q.5 a) Compute minimum cost spanning tree for the following graph. 09



b) Write an algorithm to find smallest & largest number in an array. 06

Section B

Q.6 Solve any five questions: 10

a) Define multistage graph.
b) Define implicit & explain constraints.
c) What is branch & bound method?
d) State 8-queens problem.
e) Define chromatic number of graph.
f) Explain dead-node and live-node.

Q.7 a) Determine optimal binary search tree for n=4, (a1, a2, a3, a4) = (do, if, int, while) P(1:4) = (3, 3, 1, 1) q(0:4) = (2, 3, 1, 1, 1) 10

b) Write an algorithm for all pairs shortest path problem. 05

Q.8 a) Solve sum of subset problems using back tracking for n = 4 (w1, w2, w3, w4) = (11,13,24,7) & m = 31 08

b) Explain connected & biconnected components in a graph. 07

Q.9 a) Solve the following TSP using branch and bound for the given cost matrix. 10

$$\begin{bmatrix} \infty & 10 & 15 & 20 \\ 5 & \infty & 9 & 10 \\ 6 & 13 & \infty & 12 \\ 8 & 8 & 9 & \infty \end{bmatrix}$$

b) Explain graph coloring problem. 05

Q.10 a) Solve 15-puzzle problem using branch & bound. Initial arrangement is: 10

$$\begin{bmatrix} 1 & 2 & 3 & 4 \\ 5 & 6 & & 8 \\ 9 & 10 & 7 & 11 \\ 13 & 14 & 15 & 12 \end{bmatrix}$$

b) Explain Least cost branch & bound & search. 05

Total No. of Printed Pages:04

SUBJECT CODE NO: H-196
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (CSE/IT)
Theory of Computation
(REVISED)

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

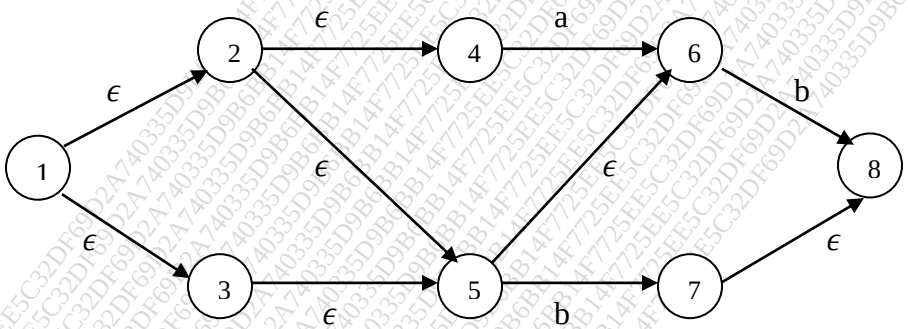
Please check whether you have got the right question paper.

N.B i) Q. No.1 and Q. No. 6 are compulsory.
ii) Attempt any two questions from Q. No.2 to Q. No.5 and two questions from Q.No.7 to Q. No. 10 of each section.
iii) Figures to the right indicate full marks.

SECTION A

Q.1 Attempt any five questions from the following: 10

a) Compute $\epsilon -$ closure of every state in the following $\epsilon -$ NFA.



b) Differentiate between Mealy and Moore Machine.

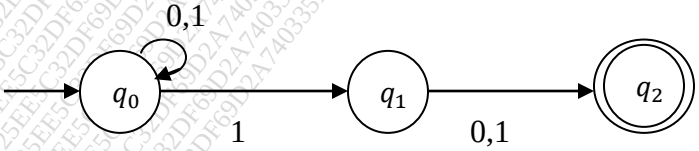
c) Construct finite automata for the regular expression $11(0 + 1)0^*$

d) State any two algebraic laws for regular expressions with suitable example.

e) Why are context – free grammars used in parsers? Justify your answer.

f) Find regular expression for set of all strings over {a, b} beginning & ending with ab.

g) Determine whether the string 01010 is accepted by following NFA or not.



h) Let $G = \{S \rightarrow aA,\ A \rightarrow abb|abB,\ B \rightarrow aa|ab\}$. Derive the string "aabab" from G.

Q.2 a) Find out minimal DFA for the following DFA $A = (\{q_1, q_2, q_3, q_4, q_5\}, \{0,1\}, \delta, q_1\{q_3, q_5\})$ where δ is – 08

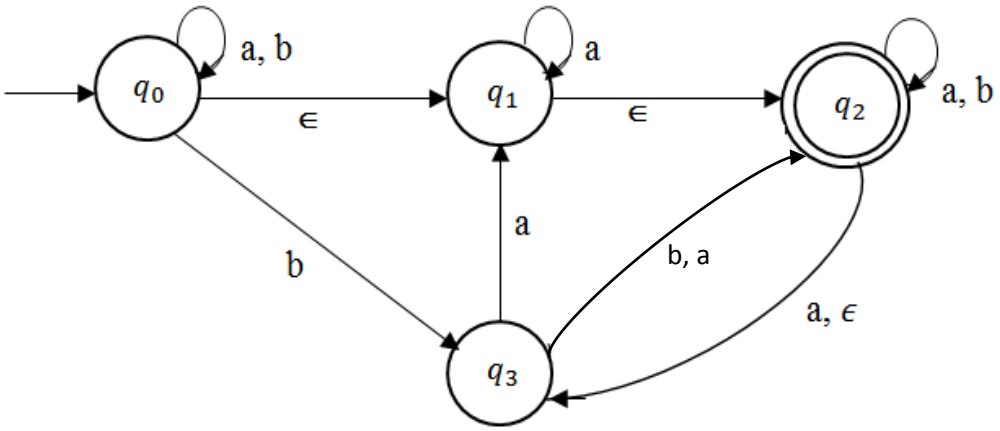
States / Σ	0	1
$\rightarrow q_1$	q_2	q_3
q_2	q_3	q_5
$* q_3$	q_4	q_3
q_4	q_3	q_5
$* q_5$	q_2	q_5

b) Define ambiguous grammar. show that the grammar $S \rightarrow a \mid abSb \mid aAb, A \rightarrow bS \mid aAAb$ is ambiguous. 07

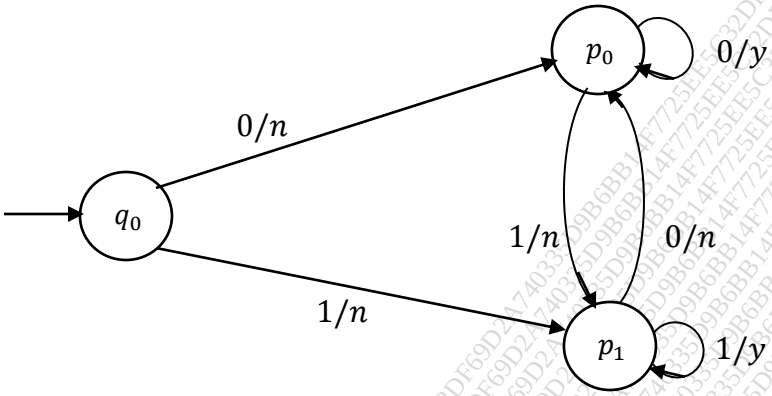
Q.3 a) Construct DFA equivalent to given NFA:- $A = (\{a, b, c, d\}, \{0,1\}, \delta, a, \{d\})$, where δ is given by:- 08

State / Σ	0	1
$\rightarrow a$	a, b	a
b	c	c
c	d	-
$* d$	d	d

b) Eliminate $\epsilon -$ transitions from the following $\epsilon - NFA$ and generate corresponding automata without $\epsilon -$ transitions. 07



Q.4 a) Consider the Mealy machine described by the transition diagram given below. Construct a Moore machine equivalent to it. 08



b) Show that $L = \{a^p / p\ is\ prime\}$ is not regular language. 07

Q.5 a) Construct DFA to accept the language: 08
L={w/w $is\ of\ even\ length\ and\ begins\ with$ 01}
Check whether 011101 is accepted by DFA or not.

b) Let G be the grammar: 07
$S \rightarrow 0B/1A\ , A \rightarrow 0/0S/1AA, B \rightarrow 1/1S/0BB.$
For the string 00110101, find
i) Leftmost derivation
ii) Rightmost derivation
iii) Parse tree

SECTION B

Q.6 Attempt <u>any five</u> questions from the following. 10

a) Eliminate null productions from the following grammar:
$S \rightarrow aS/AB\ , A \rightarrow \Lambda\ , B \rightarrow \Lambda\ , D \rightarrow b$

b) Define Greibach Normal form with suitable example.

c) Explain multitape turing machine with example.

d) Draw transition diagram for the following PDA:
$A = (\{q_0, q_1\}, \{a, b\}, \{a, z_0\}, 8, q_0, z_0, \phi)$
Where δ is defined by –
$\delta(q_0, a, z_0) = \{(q_0, az_0)\}$
$\delta(q_0, a, a) = \{(q_0, aa)\}$
$\delta(q_0, b, a) = \{(q_1, a)\} = \delta(q_1, b, a)$
$\delta(q_1, a, a) = \{(q_1, \Lambda)\}$
$\delta(q_1, \Lambda, z_0) = \{(q_1, \Lambda)\}$

e) Define turing machine formally.

f) Illustrate working of PDA with neat diagram.

g) State the application of pumping lemma for context – free languages.

h) Differentiate between deterministic and non-deterministic PDA.

Q.7 a) Design a turing machine to recognize all strings consisting of odd number of 1's. Test whether this TM accepts 11111 or not. 08

b) Construct a PDA equivalent to the following CFG: 07

$S \rightarrow a|\ as \mid ssb \mid sbs.$
test whether aaabba is in N(A).

Q.8 a) Construct a reduced grammar equivalent to the grammar: 07
$S \rightarrow aAa\ , A \rightarrow Sb|bCC|DaA, C \rightarrow abb|DD, E \rightarrow aC, D \rightarrow aDA$

b) Construct a CFG equivalent to the following PDA: 08
$M = (\{q_0, q_1\}, \{0,1\}, \{x, z_0\}, \delta, q_0, z_0, \phi)$
Where , δ is given by :-
$\delta(q_0, 0, z_0) = \{(q_0, Xz_0)\}$
$\delta(q_0, 0, X) = \{(q_0, XX)\}$
$\delta(q_0, 1, X) = \{(q_1, X)\}$
$\delta(q_1, \Lambda, X) = \{(q_1, \Lambda)\}$
$\delta(q_0, \Lambda, z_0) = \{(q_1, \Lambda)\}$

Q.9 a) Construct a PDA accepting language $L = \{a^n b^{2n} | n \geq 1\}$ by null store. 07

b) Reduce the following grammar to Chomsky normal form: 08

$S \rightarrow 1A|0B\ , A \rightarrow 1AA|0S|0, B \rightarrow 0BB|1S|1.$

Q.10 Write short notes on : 15
a) Turing Machine and Halting Problem.
b) Linear Bounded Automata.
c) Recursively Enumerable languages.

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-317
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (CSE/IT)
Database Management System
(REVISED)

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

Please check whether you have got the right question paper.

N.B
1. Q.No.1 from section A and Q.No.6 from section B are compulsory.
2. Solve any two questions from remaining from section A & B.
3. Assume suitable data.

Section A

Q.1 Attempt any five: 10

i) What is DML compiler?
ii) Define multivalued dependency.
iii) List out responsibilities of database designer.
iv) What is data independence?
v) Differentiate between strong and weak entity with example.
vi) What is cardinality and arity of a relation?
vii) Differentiate total and partial participation of entities into relationship.
viii) What is the use of foreign key?

Q.2 a) Explain entity integrity and referential integrity constraints. 08

b) Construct example for each of the following. 07
i) A relation that violates domain constraint
ii) A relation that violates key constraint

Q.3 a) Design ER diagram for part of a bank database. Each bank can have multiple branches and each branch can have multiple accounts and loans. Place attributes at appropriate position. 08

b) Explain Aggregation with suitable example. 07

Q.4 a) Explain disadvantages of file processing system. 08

b) Describe three schema architecture. Why mapping is required between schema levels. 07

Q.5 Write a short note on: (any three) 15
a) ER data model
b) Network data model
c) Relational data model
d) Hierarchical data model

Section B

Q.6 Attempt any five: 10

i) What is the difference between delete and truncate command?
ii) List out aggregate functions and what is the use of aggregate functions.
iii) What is lossy decomposition?
iv) Differentiate full and partial functional dependency.
v) What is compatible relation?
vi) Differentiate between shared lock and exclusive lock.
vii) What is cascading rollback?
viii) What is atomicity?

Q.7 a) Explain conflict and view serializability. Prove that if schedule is view serializable it is also conflict serializable. 08

b) What is transaction? Explain ACID properties in detail. 07

Q.8 a) What is join dependency? Also explain fifth normal form with example. 07

b) Find out closure of a set of FD for following set of FD. 08
Suppose we are given relation
Schema $R = (A, B, C, G, H, I)$ and
Set of FD's: $A \rightarrow B$,
$A \rightarrow C$,
$CG \rightarrow H$,
$CG \rightarrow I$,
$B \rightarrow I$,

Q.9 a) What is database recovery? Also explain recovery techniques in detail. 07

b) Explain left, right and full outer join operation in relational algebra. 08

Q.10 a) Consider following relation 08
Emp (E_id, E_name, Salary, D_no)
Dept (D_no, D_name, D_MGR)
Write down SQL queries for:
i) Find out highest salary
ii) Find out name of employees who works in "Marketing" Dept.
iii) Find out E_name, Dept name and salary who works for D_no=2
iv) Arrange records of employee ordered by decreasing salary.

b) Explain DDL commands with example. 07

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-296
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (CSE/IT)
Software Engineering
(REVISED)

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

Please check whether you have got the right question paper.

N.B
i) Q.No.1 and Q.No.6 are compulsory.
ii) Attempt any two questions from each section
iii) Figures right indicates full marks.
iv) Assume suitable data if necessary.

Section A

Q.1 Attempt any five questions 10

a) Enlist phases of s/w engineering.
b) List out various applications of s/w.
c) Define the term functional independence.
d) Give the guidelines for estimating the cost.
e) Draw suitable diagram for linear sequential model.
f) What is QFD?
g) List the software design principles.
h) Explain the term 'Abstraction'.

Q.2 a. Explain SDLC in detail 07
b. Explain COCOMO model in detail 08

Q.3 a. Explain programming style in coding 07
b. List out different software process models. Explain any one in detail 08

Q.4 a. Describe architectural and interface design 07
b. Explain the analysis and design model. 08

Q.5 Write short note on (any three) 15

a) Information hiding
b) Size oriented matrix
c) CMM
d) Software prototyping
e) Putnam model

Section B

Q.6 Attempt any five questions 10

a) Mention basic building blocks of UML
b) What is domain analysis
c) Define SCM
d) What is the purpose of CRC cards?
e) Define behaviour analysis in OOA
f) What is test case? Explain it with suitable example
g) What is object oriented design?
h) Draw the class diagram for any given system

Q.7 a. Explain class diagram with suitable example 07
b. Explain the object oriented design process? 08

Q.8 a. What are the software testing strategies for object oriented system 07
b. What is web app engineering process? 08

Q.9 a. Draw use case diagram for library management system 07
b. What is risk management? Give different s/w risks. 08

Q.10 a. Explain in short web app engineering process 07
b. Give the steps of analysis & design for object oriented system & explain it 08

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-268
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (CSE/IT)
Software Testing and Quality Assurance
(REVISED)

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

Please check whether you have got the right question paper.

N.B i) Q.No.1 from section A and Q.No.6 from section B are compulsory.
ii) Attempt any two questions from the remaining questions in each section .

Section A

Q.1 Answer the following (Any five) 10
1) Define quality concept.
2) When should testing be stopped?
3) What is performance testing?
4) What is statement coverage?
5) What are the objectives of testing?
6) What is security testing?
7) Define white box testing and list it's methods.
8) What is software reliability?

Q.2 a) Explain any two software development models. 07

b) Explain integration testing in detail. 08

Q.3 a) Differentiate between verification and validation. 08

b) What is black box testing? Explain any one black box testing method. 07

Q.4 a) Explain in detail software testing life cycle. 07

b) Explain usability testing in detail. 08

Q.5 Write a short note on (any three) 15
1) SQA plan
2) Inspection
3) User interface testing
4) Unit testing.

Section B

Q.6 Answer the following (any five) 10

1) What are the disadvantages of manual testing?
2) What are the benefits of test documentation
3) What is impact of defect in deployment phase?
4) What are the features of testing tools?
5) List test plan benefits
6) How to build test data?
7) What is open source tool ? give example
8) What are the classification of defects?

Q.7 a) What are guidelines for selecting tools? 07

b) Explain risk analysis 08

Q.8 a) Explain test management in detail 07

b) Explain defect life cycle 08

Q.9 a) What is test plan? Explain various elements included in test plan according to IEEE standards. 07

b) Explain defect fault and failure of a project with an example. 08

Q.10 Write short notes on (any three) 15

1) Fagan inspection
2) Static VS dynamic testing tool
3) Qualitative analysis
4) Strategic management

Total No. of Printed Pages:03

SUBJECT CODE NO:- H-421
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (CSE/IT)
Operating System
(REVISED)

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

Please check whether you have got the right question paper.

N.B i) Q. No 1 and Q. No 6 are compulsory.
ii) Attempt any two questions from Q. No 2 to Q. No 5 and Q. No7 to Q. No 10 of each section.
iii) Figures to the right indicate full marks.

Section A

Q.1 Attempt any five questions from following 10

1) Explain embedded OS with its function.
2) What is exokernel
3) What is batch system?
4) Differentiate between thread & process
5) What is critical section
6) Define process.
7) Enlist any four operations of file
8) Draw three directory structure

Q.2 a) Explain user view of computer system. 07

b) Explain person's solution for achieving mutual exclusion 08

Q.3 a) Explain process state & process control block in detail. 07

b) Explain file organization methods. 08

Q.4 a) Explain real time & time sharing OS. 07

b) Explain implementation of directories in detail. 08

Q.5 a) What are the points to be considered in file system design? Explain linked- list allocation & indexed allocation in detail. 07

b) Consider following process with length of CPU burst time in milliseconds. 08

Process	Burst time
P1	7
P2	12
P3	2
P4	3
P5	5

a) Draw Gantt charts illustrating execution of these processes for Round Robin scheduling (Quantum =2) & FCFS

b) Calculate average waiting time for each scheduling algorithm.
Consider all processes arrival in order P1, P2, P3, P4, and P5 at time zero.

Section B

Q.6 Attempt any five questions from following. 10

1) Define logical and physical address
2) Describe page table
3) What is page fault?
4) What is device driver?
5) Enlist various disk scheduling algorithms.
6) Define safe state.
7) How to detect deadlock
8) What is best fit & first fit memory allocation?

Q.7 a) What is demand paging? Explain in detail. 08

b) Explain disk formatting. 07

Q.8 a) Explain deadlock prevention in detail. 07

b) Explain following page replacement algorithms in detail. 08
i) Optimal page replacement
ii) Least recently used page replacement

Q.9 a) Explain Raid in detail. 07

b) A system has 3 types as resources R1,R2,R3, their number of units are 3,2 and 2 respectively. Four processors P1,P2,P3,P4 are currently connecting for resources in the following manner: 08

a) P1 is holding one unit of R1 and is requesting for one unit of R2.
b) P2 is holding two units of R2 and requesting for one unit each of R1 & R3.
c) P3 is holding one unit of R1 &. is requesting one unit of R2
d) P4 is holding two units of R3 & is requesting for one unit of R1.
Determine which, if any, of the processes are deadlocked in this state.

Q.10 a) Suppose a disk drive has 300 cylinders, numbered 0 to 299 . The driver is currently serving the request at cylinder 150. The queue of pending request is 76,122,135,160,201,220,230,156,140 starting from correct head position what is the total distance in cylinder that the disk arm require to satisfy all pending requests for SSIF & SCAN 08

b) Explain multiprogramming with fixed partitioning & variable partitioning in detail. 07

Total No. of Printed Pages:03

SUBJECT CODE NO:- H-421
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (CSE/IT)
Operating System
(REVISED)

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

Please check whether you have got the right question paper.

N.B i) Q. No 1 and Q. No 6 are compulsory.
ii) Attempt any two questions from Q. No 2 to Q. No 5 and Q. No7 to Q. No 10 of each section.
iii) Figures to the right indicate full marks.

Section A

Q.1 Attempt any five questions from following 10

1) Explain embedded OS with its function.
2) What is exokernel
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4) Differentiate between thread & process
5) What is critical section
6) Define process.
7) Enlist any four operations of file
8) Draw three directory structure

Q.2 a) Explain user view of computer system. 07

b) Explain person's solution for achieving mutual exclusion 08

Q.3 a) Explain process state & process control block in detail. 07

b) Explain file organization methods. 08

Q.4 a) Explain real time & time sharing OS. 07

b) Explain implementation of directories in detail. 08

Q.5 a) What are the points to be considered in file system design? Explain linked- list allocation & indexed allocation in detail. 07

b) Consider following process with length of CPU burst time in milliseconds. 08

Process	Burst time
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P2	12
P3	2
P4	3
P5	5

a) Draw Gantt charts illustrating execution of these processes for Round Robin scheduling (Quantum =2) & FCFS

b) Calculate average waiting time for each scheduling algorithm.
Consider all processes arrival in order P1, P2, P3, P4, and P5 at time zero.

Section B

Q.6 Attempt any five questions from following. 10

1) Define logical and physical address
2) Describe page table
3) What is page fault?
4) What is device driver?
5) Enlist various disk scheduling algorithms.
6) Define safe state.
7) How to detect deadlock
8) What is best fit & first fit memory allocation?

Q.7 a) What is demand paging? Explain in detail. 08

b) Explain disk formatting. 07

Q.8 a) Explain deadlock prevention in detail. 07

b) Explain following page replacement algorithms in detail. 08
i) Optimal page replacement
ii) Least recently used page replacement

Q.9 a) Explain Raid in detail. 07

b) A system has 3 types as resources R1,R2,R3, their number of units are 3,2 and 2 respectively. Four processors P1,P2,P3,P4 are currently connecting for resources in the following manner: 08

a) P1 is holding one unit of R1 and is requesting for one unit of R2.
b) P2 is holding two units of R2 and requesting for one unit each of R1 & R3.
c) P3 is holding one unit of R1 &. is requesting one unit of R2
d) P4 is holding two units of R3 & is requesting for one unit of R1.
Determine which, if any, of the processes are deadlocked in this state.

Q.10 a) Suppose a disk drive has 300 cylinders, numbered 0 to 299 . The driver is currently serving the request at cylinder 150. The queue of pending request is 76,122,135,160,201,220,230,156,140 starting from correct head position what is the total distance in cylinder that the disk arm require to satisfy all pending requests for SSIF & SCAN 08

b) Explain multiprogramming with fixed partitioning & variable partitioning in detail. 07

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-386
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (CSE/IT)
Programming in Java
(REVISED)

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

Please check whether you have got the right question paper.

N.B
i) Question No. 1 and Q. No 6 are compulsory.
ii) Attempt any two questions from each section.
iii) Figures right indicate full marks.
iv) Assume suitable data if necessary.

Section A

Q.1 Attempt any five questions 10

a) Why java is called two stage language?
b) What is constructor ? Explain constructor overloading with example.
c) What is difference between system packages & user defined packages.
d) What is exception? List categories of exception.
e) Explain difference between method overloading & method overriding.
f) What is error? How errors are managed in java.
g) Write a java code to demonstrate the use of try catch & finally block.
h) What is naming conventions?

Q.2 a) What is inheritance ? Explain types of inheritance in detail. 07

b) Explain following terms: i) Throw/Throws ii) Finally Block. 08

Q.3 a) Write visibility control in detail . Write a java code of any one visibility control. 07

b) Write a java code to demonstrate the use of thread class. 08

Q.4 a) Explain in detail runnable interface in java. 07

b) What is interface ? Why it is used in java? 08

Q.5 a) Write a java code to give menus to user using switch case & perform. Operations of addition , subtraction , multiplication & division by taking input from user.(Use different classes for each menu) 08

b) Explain life cycle of thread with suitable diagram. 07

Section B

Q.6 Attempt any five questions 10

a) List & explain different swing components.
b) What is JDBC driver?
c) Explain difference between server socket & socket.
d) Describe the term JApplet.
e) List and explain event classes.
f) Describe JButton class in java.
g) Write a java code to display filled rectangle with red colour using applet .
h) What is AWT ? List Awt classes.

Q.7 a) Write a java code to insert a record into student's database.(Assume suitable fields.) 08

b) What are sources of events? Explain event listener interface. 07

Q.8 a) Write a java code to passing integer parameters to applet and perform addition . 08

b) Explain following terms: i) Client server architecture in java. ii) Reserved Sockets. 07

Q.9 a) Explain AWT hierarchy in detail. 08

b) Explain the concept caching proxy HTTP Server. 07

Q.10 a) Explain in detail stream classes in java. 07

b) Explain checkbox control in detail? Write a java code to demonstrate the use of checkbox control. 08

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-106
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (CSE/IT)
Advanced JAVA
(REVISED)

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

Please check whether you have got the right question paper.

N.B
i) Question No.1 and 6 are compulsory.
ii) Attempt Any two questions from each section from remaining.
iii) Figure to the right indicates full marks.
iv) Assume Suitable data if necessary.

Section A

Q.1 Attempt any five questions: 10
a) What is web server?
b) Enlist any four methods of session tracking.
c) What are JSP implicit objects?
d) Explain any four directives of JSP
e) What is stub in RMI?
f) What are cookies?
g) What are scripting elements? Give example.
h) Give any two request methods.

Q.2 a) What is web server? Explain HTTP protocol in detail. 07
b) Write down the steps to create JSP application with suitable example. 08

Q.3 a) Explain deployment descriptor with details. 07
b) What are page directives in JSP? Explain with suitable example. 08

Q.4 a) Explain web container in detail. 07
b) Explain with servlet collaboration through shared objects. 08

Q.5 a) What is session? Explain sessions in JSP with suitable example. 08
b) What is HTTP protocol? Explain HTTP request & HTTP response. 07

Section B

Q.6 Attempt any five questions: 10

a) What is role of SOAP in SOA?
b) What is MVC
c) What is use of JSF?
d) What is HQL?
e) What JSF facelets tag.

f) What is role of controller in struts?
g) Draw JSF architecture.
h) Enlist Components of java mail.

Q.7	a)	Explain SOAP protocol in detail	08
	b)	Explain packaging beans & JSF configuration.	07
Q.8	a)	Explain basic components of struts	08
	b)	Explain EJB architecture.	07
Q.9	a)	What is struts? Explain architecture of struts in detail.	07
	b)	What is web service? Explain how to create a simple web service.	08
Q.10	a)	Explain session beans with suitable example.	08
	b)	What is hibernate? What is O/R mapping.	07