Seat No.

T.E. (Computer Science & Engineering) (Semester - V)
Examination, November - 2019
COMPUTER GRAPHICS
Sub. Code :66293

Day and Date :Friday, 22-11-2019   Total Marks :50
Time : 02.30 p.m.to 4.30 p.m.

Instructions :
1) Q. No. 3 and Q.No. 6 are compulsory Attempt any one from Q. NO. 1 and QNo.2 Q. any one from Q. NO. 4 and Q. NO. 5.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary.

Q1) a) Derive the transformation matrix for reflecting a two dimensional object through an arbitrary line. **[6]**

b) Explain Sutherland cohen subdivision algorithm for line clipping. **[6]**

Q2) a) Explain different criteria's used by bresenham's circle generation algorithm to select the appropriate pixel which best represents the actual circle. **[6]**

b) Define generalized 3D transformation matrix. Explain 3D rotation and reflection. **[6]**

Q3) a) Consider the clipping window $X_L = -1$, $X_R = +1$, $Y_B = -1$ and $Y_T = +1$ and the line From $P_1(-3/2, 1/6)$ to $P_2(1/2, 3/2)$. Clip the line using end point code algorithm. **[7]**

b) What is scan conversion. Explain run length encoding technique. **[6]**

P.T.O.

Q4) a) Explain parametric representation of cubic spline curve? [6]

b) What is warping? Explain Mesh warping method. [6]

Q5) a) What is procedural animation? Differentiate between key-frame based animation and procedural animation [6]

b) Explain phone Shading method for rendering a polygon surface. [6]

Q6) a) Explain the convex hull property of B-spline Curve [7]

b) Expalin diffuse reflection model for calculating surface intensity at a given point [6]

Seat No.

T.E. (Computer Science and Engg.) (Part - III) (Semester - V) Examination, November - 2019
SYSTEM PROGRAMMING
Sub. Code :66294

Day and Date : Monday, 25 - 11 - 2019
Time : 2.30 p.m. to 5.30 p.m.

Total Marks : 100

Instructions :
1) Question No.4 and 8 are compulsory.
2) Answer any two questions from Question No. 1,2 and 3.
3) Answer any two questions from Question No. 5,6 and 7.
4) Figures to right indicate full marks.

Q1) a) What is Language Processor? Explain in detail Language Processing Activities. **[8]**

   b) Discuss in detail fundamentals of Language specifications. **[8]**

Q2) a) Explain Intermediate Representation with an illustrative example. **[8]**

   b) How the problem of Forward Reference is resolved in Assembler? **[8]**

Q3) a) Write about MACRO Definition and Call with syntax and Example. **[8]**

   b) Discuss in detail, along with sketch/ block diagram, the design of a macro preprocessor. **[8]**

Q4) Write short note on: **[18]**

   a) Toy Compiler.

   b) Advanced macro facilities.

   c) LEX and YACC LPDT's

P.T.O.

Q5) a) What is the Role of Operand Descriptor in the choice of instruction in target code of Toy code generator. [8]

b) Discuss in detail with example; Triples and Quadruples. [8]

Q6) a) Explain Memory Allocation in Block Structured Language. [8]

b) Write in detail; Intermediate code for Expression. [8]

Q7) a) Explain Design of an Editor with suitable diagram. [8]

b) Write and Explain Relocation Algorithm. [8]

Q8) Write short note on: (Solve any three) [18]

a) Steps in Program Development.

b) Debug Monitor.

c) Compilation of Control Structures.

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Seat No.

T.E. (CSE) (Part-III) (Semester - V) (Revised) Examination, November - 2019
COMPUTER ALGORITHM
Sub. Code : 66296

Day and Date : Friday, 29 - 11 - 2019   Total Marks : 100
Time : 2.30 p.m. to 5.30 p.m.

Instructions : 1) Questions 4 and 8 are compulsory
2) Attempt any four questions from remaining questions
3) Figures to the right indicate full marks.
4) Assume suitable data wherever necessary.

Q1) a) Illustrate recursive algorithm for Tower of Hanoi with its analysis. **[8]**

b) Define Job Sequencing with deadline problem using Greedy approach. Solve following instance, **[8]**
n=7, (p1,p2,p3,p4,p5,p6,p7) = (3,5,20,18,1,6,30) and
(d1,d2,d3,d4,d5,d6,d7) = (1,3,4,3,2,1,2)

Q2) a) Illustrate recursive and iterative binary search algorithm with example and complexity. **[8]**

b) Apply dynamic programming method to find minimum cost of path from S-T is the multistage graph of following figure. **[8]**
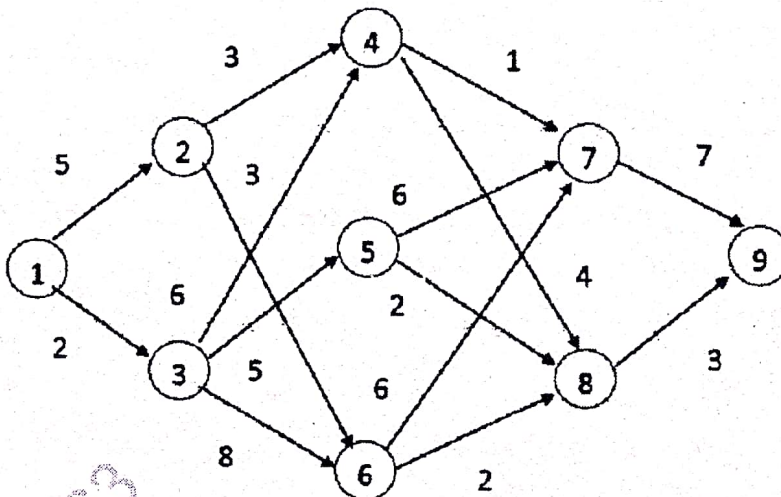
Q3) a) Define Spanning Tree. Explain prim's and Kruskal's Algorithm to find minimum Spanning Tree with suitable example. **[8]**

b) Discuss Travelling Sales Person problem with dynamic programming. Construct an optimal trevelling sales person tour using Dynamic Programming for following instance. [8]
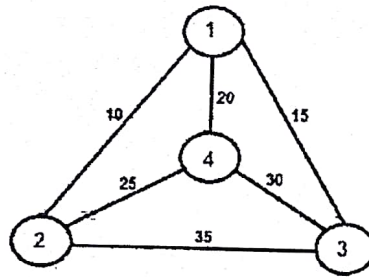
Q4) Solve the following. [18]

a) Write an algorithm for matrix transpose and find the time complexity of the algorithm using step count method

b) Solve 0/1 knapsack problem using dynamic programming foe following source instance using n=3, (w1, w2, w3) = (2,3,4) and (p1,p2,p3) = (1,2,5) and capacity of knapsack is 6.

c) Build the set of optimal Huffman code for 7 messages with relative Frequencies (3,5,9,13,21,25,30).

Q5) a) What is AND/OR graph decision problem? Show that CNF satisfiability is reducible to AND/OR graph decision problem. [8]

b) With respect to parallel algorithms define what is speedup, work done, efficiency of an algorithm. Explain Amdahl's law and mention when parallel algorithm is said to be work Optimal. [8]

Q6) a) Explain with necessary example and steps the Prefix Computation on MESH [8]

b) Explain in general what backtracking method is. [8]

Q7) a) Write an algorithm to convert non bi-connected graph into bi-connected graph and explain the method with an example [8]

b) Explain binary tree traversal techniques using suitable example. [8]

Q8) Write short note on: [18]

a) Broadcasting on MESH

b) Hamiltonian cycle

c) Hypercube computational model

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Seat
No.

T.E. (C.S.E.) (Semester - V) (Revised)

Examination, November - 2019

OBJECT ORIENTED MODELING AND DESIGN

Sub. Code: 66295

Day and Date : Wednesday, 27 - 11 - 2019   Total Marks : 50

Time : 2.30 p.m. to 4.30 p.m.

Instructions :
1) All the questions are compulsory, provided internal options in each question.
2) Figures to the right indicate full marks.

Q1) a) Explain Object Modeling Technology (OMT) stages.   **[7]**

     b) Explain the following advanced dynamic modeling concepts: **[7]**

         i)   Entry and Exit Actions

         ii)   Internal Actions

         iii)   Automatic Transitions

OR

     c) List and explain the steps involved in designing the algorithms.   **[7]**

Q2) a) Explain the following terms with respect to object modeling.   **[6]**

         i)   Multiplicity

         ii)   Role Names

         iii)   Qualification

     b) What is Data Flow diagram and explain its components.   **[6]**

OR

     c) Explain breaking a system into subsystem with respect to system design.   **[6]**

P.T.O.

Q3) a) Explain Structural things of UML. [6]

b) Explain interaction diagram, its contents and common uses. [6]

OR

c) Explain following terms with respect to architectural modeling. [6]

    i) Mechanisms

    ii) Node and Names

    iii) Collaborations

Q4) a) Explain class diagram, its properties, contents and common uses. [6]

b) Draw and explain state chart diagram for ATM. [6]

OR

c) What is use case diagram? Draw use case diagram for credit card validation system. [6]

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Seat No.

T.E. (Computer Science and Engg.) (Semester - V) (Revised) Examination, December - 2019
NETWORK TECHNOLOGIES
Sub. Code : 66297

Day and Date : Monday, 2 - 12 - 2019

Time : 2.30 p.m. to 4.30 p.m.

Total Marks : 50

Instructions :
1) Q.1 is Compulsory.
2) Attempt any three questions from Q.2 to Q.5
3) Figures to the right indicate full marks.
4) Assume suitable data wherever necessary.

Q1) a) What is hand off? Explain intra-BSC handover in GSM. [6]

b) Give the difference between WLAN and WPAN technologies [4]

c) Explain design goals of routing protocol for Ad hoc wireless network.[4]

Q2) a) Explain Distribution system concept and extended service set of WLAN. [6]

b) Explain Bluetooth time slot packet transmission. [6]

Q3) a) Explain MAC layer operation of IEEE 802.11, accessing and joining the wireless network. [6]

b) Explain the following physical links used in Bluetooth [6]
   i) Asynchronous connectionless link.
   ii) Synchronous connection oriented link.

Q4) a) With a neat block diagram explain WEP encryption and decryption algorithm. [6]

b) Explain the applications of wireless sensor networks. [6]

Q5) a) Write a short note on Mobile IP. [6]

b) Explain the architecture of sensor node. [6]

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Seat No.	

T.E.(CSE) (Part - II) (Semester - VI) (Revised) Examination, November - 2019
COMPILER CONSTRUCTION
Sub. Code :66858

Day and Date :wednesday , 13-11-2019   **Total Marks :50**
Time : 9.30 a.m.to 11.30 a.m.

Instructions : 1) All questions are compulsory
                    2) Figures to the right indicate full marks.

SECTION - I

Q1) a) List and explain various error recovery strategies in Syntax analysis. **[6]**

OR

a) List and describe different compiler construction tools.   **[6]**

b) How to recognize the tokens.   **[4]**

Q2) a) Construct the LR (1) parsing table for the follwoing grammar   **[6]**

$S \rightarrow CC$

$C \Rightarrow cC$

$C \rightarrow d$

OR

a) What are the features of LR Parser. Write the algorithm for LR parsing.   **[6]**

b) $S \rightarrow i\,E\,t\,S \mid i\,E\,t\,SeS \mid a$

$E \rightarrow b$

Is the grammar ambiguous? If yes then remove the ambiguity.   **[4]**

P.T.O.

Q3) Explain the role of lexical analyzer with appropriate block diagram. **[5]**

SECTION - II

Q4) a) What are inherited attributes? Explain with example .**[6]**

OR

a) Define Dependency Graph. Describe methods for evaluating the semantic rules. **[6]**

b) Explain Peephole code optimization technique and its characteristics.**[4]**

Q5) a) What are the rules for writing the Semantic actions in an SDT when we have both inherited and synthesized attributes. Explain how to convert SDD into SDT with the help of an example. **[6]**

OR

a) Write and explain SDD for generating syntax tree for an expression. **[6]**

b) Explain various transformations on Basic Blocks. **[4]**

Q6) Draw syntax tree and DAG for the expression and also write the intermediate code in three address code format. **[5]**

a+a*(b-c) + (b-c)*d

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Seat No.

T.E. (Computer Science & Engineering) (Part - II) (Semester - VI)

Examination, November - 2019

OPERATING SYSTEM - II

Sub. Code : 66859

Day and Date : Thursday, 14 - 11 - 2019   Total Marks : 100

Time : 10.00 a.m. to 1.00 p.m.

Instructions :   1)   Figures to the right indicate full marks.

2)   Solve any two questions from Q.1 to Q.3.

3)   Solve any two questions from Q.4 to Q.6.

Q1) a)   Draw and Explain Block diagram of Unix Kernel.   [7]

b)   Explain following system calls in detail: [8]

i)   Open   ii)   Read   iii)   Chmod   iv)   Mount

c)   Describe the working of namei algorithm. Consider the following File System and explain how namei algorithm will respond in following situations /* no. in ( ) are representing inode no.*/   [10]
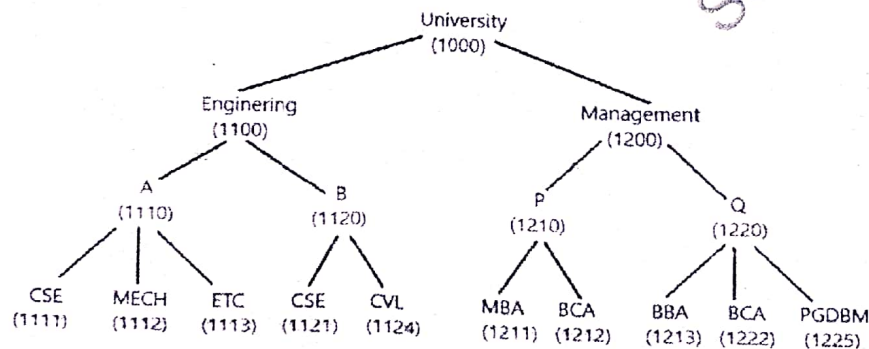
i)   Current working directory is root (University) and pathname is "/ Engineering / A / CSE"

ii)   Current working directory is B and pathname is "/ B / ETC"

iii)   Current working directory is root (University) and pathname is "./ Management / Q / BCA

P.T.O.

Q2) a) Explain buffer retrieval algorithm. Is sleep action in scenario 4 and scenario 5 are same? Justify your answer [8]

b) How inode structure is maintains address of data blocks? Consider the Unix with block size 512 bytes and address size 16 bits, What will be the maximum file size supported by system? [8]

c) What is Context of process? Why context switch is permissible only in asleep state of process? Explain using example. [9]

Q3) a) Explain the File System Layout. What is remembered inode? [7]

b) What are different data structures associated with file subsystem? [6]

c) List the I/O parameters saved in U-area while executing read system call? also Explain their purpose [6]

d) What is the purpose of pipe system call? How it is differ from named pipe? [6]

Q4) a) With the help of state transition diagram explain life cycle of process [9]

b) What is Region? Describe algorithm for allocate region [8]

c) What is signal? Explain checking and handling of signal [8]

Q5) a) Describe algorithm for 'exit' [9]

b) Explain data structures used in demand paging [8]

c) How age of page is calculated? What is page stealer process? [8]

Q6) a) Explain functions of Line Discipline Module [7]

b) Explain range of process priorities. How priority is calculated? How priority of process can be controlled? [6]

c) What is swapping? How swapping device is managed? [6]

d) Describe how size of region can be changed (GrowReg algorithm) [6]

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Seat
No.

T.E. (C.S.E.) (Semester - VI) (Revised) Examination, November - 2019
DATABASE ENGINEERING
Sub. Code : 66860

Day and Date : Friday, 15 - 11 - 2019   **Total Marks : 50**
Time : 9.30 a.m. to 11.30 a.m.

Instructions :
1) All questions are compulsory.
2) Figures to right indicate full marks.
3) Assume suitable data wherever required.

Q1) Attempt any two: **[2×7]**

a) Draw on ER diagram for university database and explain it.

b) State and briefly explain the advantages of DBMS over traditional file based system.

c) Draw the schema diagram for a student database & explain.

Q2) Attempt any two: **[2×6]**

a) What is a DML? State the types of access using DML.

b) With reference to relational databases, explain the following terms:

i) Relation

ii) Tuple

iii) Relation instance

iv) Domain of attributes.

c) State & specify the SQL datatypes supporting dates & times.

P.T.O.

Q3) Attempt any two: [2×6]

a) What are functional dependencies? State the rules to find logically implied functional dependencies.

b) What is normalization? Explain INF and 2NF.

c) What is stable storage? How it can be implemented?

Q4) Attempt any two from: [2×6]

a) What is a transaction? Explain the ACID properties of transaction.

b) Explain 2 phase commit protocol.

c) Explain buffer management.

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Seat
No.

T.E. (C.S.E.) (Part - III) (Semester - VI) Examination, November - 2019
**INFORMATION SECURITY**
Sub. Code: 66862

Day and Date : Wednesday, 20 - 11 - 2019   Total Marks : 50
Time : 9.30 a.m. to 11.30 a.m.

Instructions :   1)   Q.3 and Q.6 are compulsory.
               2)   Solve any one out of Q.1 and Q.2.
               3)   Solve any one out of Q.4 and Q.5

Q1) a)   Explain key distribution using Public key Certificates.   [6]
      b)   Describe the model for Network Security with neat diagram.   [6]

Q2) a)   Illustrate key generation in DES algorithm with neat diagram.   [6]
      b)   State the requirements of MAC. What are the basic uses of MAC? [6]

Q3) a)   Compare :   [6]
         i)   Block Cipher and Stream Cipher.
         ii)   Confusion and Diffusion.
      b)   Explain the RSA algorithm. Perform encryption & decryption using RSA
         algorithm if p = 5, q = 11, e = 3, M = 9.   [7]

Q4) a)   Distinguish between Kerberos Version 4 and Version 5.   [6]
      b)   Give the participants of SET and also briefly describe the sequence of
         events in them, that are required for an electronic transactions.   [6]

Q5) a)   How Kerberos works in multiple Realm.   [6]
      b)   Explain various services provided by PGP.   [6]

Q6) a)   Explain X-509 Certificate format in detail with diagram.   [6]
      b)   Explain in detail ESP Format in IPSEC.   [7]

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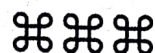
Seat No.

T.E. (C.S.E.) (Part - III) (Semester - VI) (New) Examination, November - 2019
STORAGE NETWORKS
Sub. Code : 66861

Day and Date : Tuesday, 19 - 11 - 2019

Time : 10.00 a.m. to 1.00 p.m.

Total Marks : 100

Instructions :
1) Question No.4 and 8 is compulsory.
2) Attempt any two questions from question no. 1, 2 and 3.
3) Attempt any two questions from question no. 5, 6 and 7.
4) Figures to the right indicate full marks.

Q1) a) Explain different Components of an Intelligent Storage System. [8]

b) Explain SCSI Command Model. [8]

Q2) a) Explain Fibre Channel Protocol Stack with diagram. [8]

b) Explain FC-2: data transfer. [8]

Q3) a) Explain the different components of NAS. [8]

b) Explain NAS I/O Operations with diagram. [8]

Q4) Write a short notes on (Any Three). [3×6=18]

a) Data Center Core Elements.

b) RAID Level 3

c) iSCSI Protocol Stack.

d) NAS File-Sharing Protocols.

Q5) a) Explain Symmetric storage virtualization with advantages and disadvantages. [8]

b) Explain Storage virtualization in the server with advantages and disadvantages. [8]

P.T.O.

Q6) a) Explain Failure Analysis with suitable example. [8]

    b) Explain Backup Topologies. [8]

Q7) a) What is Local Replication? Explain uses of Local Replicas. [8]

    b) Explain Host-Based Local Replication. [8]

Q8) Write a short notes on (Any Three). [3×6=18]

    a) Information Availability.

    b) Backup Process.

    c) Storage Virtualization.

    d) Storage Security Framework.

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