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Seat No.	

T.E. (Computer Science. & Engineering) (Semester - V)
Examination, April - 2018
COMPUTER GRAPHICS
Sub. Code :66293

Day and Date : Tuesday, 24- 4 - 2018 **Total Marks : 50**

Time : 9.30 a.m. to 11.30 a.m.

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

Q1) a) Explain with the help of transformation matrix 3D rotation and reflection. **[6]**

b) Explain with suitable example edge flage algorithm for polygon filling. **[6]**

Q2) a) What are three possible selections for any given point on the circle to the next pixel which best represents the circle in Bresenham's algorithm? **[6]**

b) Explain end - point code algorithm for line clipping. **[6]**

Q3) a) Explain with the help of transformation matrix rotation of a 3D object about an arbitrary axis in space. **[7]**

b) Explain sutherland - cohen midpoint subdivision algorithm for line clipping. **[6]**

Q4) a) What are Bezier curves? Explain the properties of Bezier curves. **[6]**

b) What is halftoning. Explain halftone approximation method for a 3 by 3 pixel grid on a bilevel system. **[6]**

P.T.O.

Q5) a) Explain the Radiosity lighting model. **[6]**

b) Explain representation of parabolic blended curves. **[6]**

Q6) a) Explain different Motion Control Methods (MCMs). **[6]**

b) Explain how to find whether a polygon is disjoint, intersecting, contained or surrounding in a Warnock algorithm. **[7]**

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Seat No.	

T.E. (Computer Science Engg.) (Semester - V) Examination, April - 2018
SYSTEM PROGRAMMING
Sub. Code : 66294

Day and Date : Wednesday, 25- 4 - 2018 **Total Marks : 100**

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

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 the right indicate full marks.**

Q1) a) Explain language processor development tools. **[8]**

b) Discuss in detail processing of declarations and assembler directives. **[8]**

Q2) a) Discuss in detail; along with sketch/block diagram; the design of a macro preprocessor. **[8]**

b) Explain the fundamentals of language processing. **[8]**

Q3) a) Write in detail pass structure of an assembler. **[8]**

b) Explain nested macro calls with an illustrative example. **[8]**

Q4) Write a short note on: (6 marks each) **[18]**

a) Macro Definition and Call.

b) Assembler Directives.

c) Language Processors.

P.T.O.

Q5) a) State and discuss Linking for overlays. **[8]**

b) Explain parameter passing mechanism in Compilation. **[8]**

Q6) a) Write in detail for Intermediate code generation for Expression. **[8]**

b) Write and Explain Relocation Algorithm. **[8]**

Q7) a) Explain Memory Allocation in Block Structured Languages with sutiable diagram. **[8]**

b) Discuss in detail; Steps in Program Development. **[8]**

Q8) Write a short note on: (Solve any three: each carries 6 marks) **[18]**

a) User Interfaces.

b) Absolute Loader.

c) Compilation of Control Structures.

d) Software Tools for program development.

Seat No.	

T.E. (C.S.E.) (Part-III) (Semester - V) (Revised) Examination, April - 2018

OBJECT ORIENTED MODELING AND DESIGN

Sub. Code : 66295

Day and Date : Thursday, 26 - 04 - 2018 **Total Marks : 50**
Time : 09.30 a.m. to 11.30 a.m.

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

Q1) Attempt **any two** questions out of three. **[2 × 7 = 14]**

a) Explain link and association concepts. **[7]**

b) Explain following terms with respect to dynamic modeling. **[7]**

i) State generalization

ii) Conditions

c) Explain phases of OMT Methodology. **[7]**

Q2) Attempt **any two** questions out of **three:** **[2 × 6 = 12]**

a) Explain how operation in aggregation gets propagated. **[6]**

b) Explain functional model with example. **[6]**

c) Explain the actions taken by algorithm designer while designing algorithms. **[6]**

Q3) Attempt **any two** questions out of **three:** **[2 × 6 = 12]**

a) Explain the conceptual model of UML in brief. **[6]**

b) Draw use case diagram for credit card validation system. **[6]**

c) Explain patterns and frameworks. **(6)**

P.T.O.

Q4) Attempt **any two** questions out of **three:** **[2 × 6 = 12]**

a) Explain following terms with respect ot UML **[6]**

i) Generalization

ii) Aggregation

iii) Multiplicity

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

c) Write note on - component diagrams. **[6]**

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T.E. (CSE) (Part - III) (Semester - V) (Revised) Examination, April -2018
COMPUTER ALGORITHM
Sub. Code : 66296

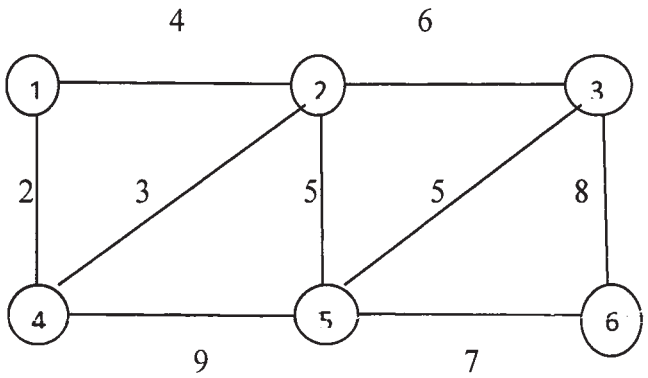
Day and Date :Friday, 27 - 04 - 2018 **Total Marks : 100**
Time : 10.00 a.m to 1.00 p.m.

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

Q1) a) Explain Performance analysis and Performance measurement. **[8]**

b) Show that the complexity of Binary Search is O(log n) for successful search and unsuccessful search. **[8]**

Q2) a) Apply Prim's algorithm to find out minimum cost spanning tree for the following graph. **[8]**

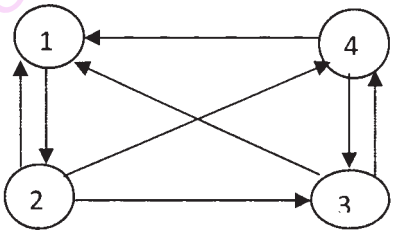


b) Write and explain the algorithm for Multistage graph using backward approach. **[8]**

P.T.O.

Q3) a) Explain Merge sort Algorithm using divide and conquer technique and show that its complexity is O (n log n). **[8]**

b) Find the solution to all pairs shortest path problem using dynamic programming. **[8]**



$$\begin{pmatrix} 0, & 5, & \infty, & \infty \\ 50, & 0, & 15, & 5 \\ 30, & \infty, & 0, & 15 \\ 15. & \infty. & 5. & 0 \end{pmatrix}$$

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

a) Knapsack 0/1

b) Selection Algorithm

c) Huffman's Code

Q5) a) Explain Pre-order, In-order and Post-order traversal techniques for binary tree. **[8]**

b) List and explain NP-Hard graph problem. **[8]**

Q6) a) Explain N queen problem and write an algorithm to test no two queens are placed in the same diagonal, same column and same row. **[8]**

b) Explain non deterministic Knapsack problem and non deterministic Maximum clique problem. **[8]**

Q7) a) Define an articulation point how non-connected graph can be converted to bi-connected graph. **[8]**

b) Explain PRAM computational model. **[8]**

Q8) Write short note on: **[18]**

a) Graph Coloring.

b) Broadcasting with Mesh and Hypercube.

c) Prefix sum computation in Hypercube.

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T.E.(CSE) (Part - I) (Semester -V) Examination, April - 2018
NETWORK TECHNOLOGIES (Paper - I)
Sub. Code : 66297

Day and Date : Saturday, 28 - 04 - 2018 **Total Marks : 50**

Time : 09.30 a.m. to 11.30 a.m.

Instructions: **1)** **Answer any two questions from each section.**
2) **Figures to the right indicate full marks.**
3) **Assume data wherever necessary.**

SECTION - I

Q1) a) Explain GSM network architecture with necessary diagram. **[6]**
b) What is MSRN? How call setup takes place using MSRN? **[6]**

Q2) a) Explain different generations of wireless cellular networks. **[4]**
b) What is handoff? Explain Intra BSC handoff operation with necessary diagram. **[8]**

Q3) a) Explain necessity of security in wireless networks. **[3]**
b) What is ESS? Explain service architecture of ESS. **[6]**
c) What is GSM SIM card? What purpose does it serve? **[4]**

SECTION - II

Q4) a) Explain table driven routing protocols. **[6]**
b) What is sensor network? Explain various components of sensor networks. **[6]**

Q5) a) What is VPN? How VPN is useful in wireless network? **[5]**
b) Explain design goals of a transport layer protocols in wireless network. **[4]**
c) Describe different types of attacks on wireless networks. **[4]**

Q6) a) Explain the role of sensor network in agriculture. **[4]**
b) With the help of neat diagram explain WEP encryption. **[4]**
c) Security with access control list. **[4]**

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Seat No.	

T.E. (C.S.E.) (Part - II) (Semester - VI) (Revised) Examination, May - 2018
COMPILER CONSTRUCTION
Sub. Code : 66858

Day and Date : Thursday, 03 - 05 - 2018 **Total Marks : 50**
Time : 2.30 p.m. to 4.30 p.m.

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

SECTION - I

Q1) a) Construct finite automata that will accept strings having the substring 101 where the Language is defined on {0, 1}. **[4]**

OR

Construct finite automata accepting the set of all strings ending with 101 where the Language is defined on {0, 1}.

b) Enumerate and describe the different compiler construction tools. **[6]**

Q2) a) Compute the FIRST and FOLLOW sets for the grammar give below. **[6]**

$$E \rightarrow T E'$$
$$E' \rightarrow +T E' \mid \wedge$$
$$T \rightarrow F T'$$
$$T' \rightarrow *F T' \mid \wedge$$
$$F \rightarrow (E) \mid id$$

OR

Explain different error-recovery techniques used in syntax analysis.

b) What is bottom up parsing? Explain the shift-reduce bottom-up parsing algorithm. **[4]**

Q3) Explain Input Buffering used in Lexical Analysis. **[5]**

P.T.O.

SECTION - II

Q4) a) With respect to Intermediate code generation explain different forms of intermediate code languages. **[6]**

OR

What are L attributed definitions? Explain with the help of an example.

b) How are array indexing instructions represented by DAGs? Explain with the help of example. **[4]**

Q5) a) Write a short note on flow graph representation of basic blocks. **[6]**

OR

What is peephole optimization? Describe different characteristics of peephole Optimization.

b) Discuss different issues in design of code generator. **[4]**

Q6) What is a basic block? Describe an algorithm to partition a three address sequences into basic blocks. **[5]**

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T.E. (Computer Science and Engineering) (Semester - VI)
Examination, May - 2018
OPERATING SYSTEM - II
Sub. Code : 66859

Day and Date : Saturday, 05 - 05 - 2018 **Total Marks : 100**

Time : 2.30 p.m. to 5.30 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) Explain Structure of buffer pool and buffer header. **[8]**

b) Explain the concept of delayed write with suitable examples. **[7]**

c) Explain Structure of a regular file in UNIX. **[10]**

Q2) a) Find the logical disk block number and offset within the block for inode number 267. Assume size of disk block as 1024 bytes and size of disk inode as 64 bytes. **[8]**

b) How are free disk blocks managed in UNIX? Explain different scenarios for assigning a free block to a file. **[8]**

c) Explain Following System calls: **[9]**

i) Create

ii) Write

iii) Mount

Q3) a) Explain read and write operations in the pipe. **[8]**

b) Explain bread algorithm. **[7]**

c) What is Super Block? List fields from the Super Block. **[5]**

d) What is incore inode? List fields from the incore inode. **[5]**

P.T.O.

Q4) a) Explain the mapping of process virtual address space to physical address space in UNIX. **[8]**

b) Explain the context of a process. **[8]**

c) What is U area? List fields from the U area. **[9]**

Q5) a) Explain the sequence of operations carried out during execution of fork. **[8]**

b) What is a signal? Explain the types of signal. **[9]**

c) Explain system calls for time. **[8]**

Q6) a) Explain swapping of a process between swap space and main memory. **[8]**

b) What is Demand paging? Explain Data Structure used for demand paging. **[10]**

c) Explain the functions of terminal line discipline. **[7]**

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Seat No.	

T.E. (CSE) (Semester-VI) (Revised) Examination, May - 2018
DATABASE ENGINEERING
Sub. Code : 66860

Day and Date : Tuesday, 08 - 05 - 2018 **Total Marks : 50**

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

Instructions :
1) **Attempt any one questions from Q. 1 and Q. 2.**
2) **Q. 3 and Q. 6 are compulsory.**
3) **Attempt one question from Q. 4 and Q. 5.**

Q1) a) Explain the traditional file based approach and its limitations. **[6]**

b) Explain the concept of database schema with an example. **[6]**

Q2) a) Explain the concept of normalization. Explain the Boyce code normal form. Is it stronger from then 3NF. Justify your answer. **[6]**

b) Explain with proper syntax and examples the DDL statement in SQL. **[6]**

Q3) a) What is an ER diagram? Draw an ER diagram for an University database. Explain each step in detail. **[7]**

b) What are functional dependencies? Explain the rules of it. **[6]**

Q4) a) What is an index in a database system? Explain dense index with appropriate figure. **[6]**

b) Explain the fixed length records file organisation and briefly explain the two problems with this approach. **[6]**

P.T.O.

Q5) a) State the various ways of organising records in a file. Explain the sequential file organisation with necessary figure. **[6]**

b) What is a transaction? Explain various properties of transaction. **[6]**

Q6) a) What is lock granularity? Explain the table level and page level locking. **[7]**

b) Explain the redo phase recovery actions when the database system is restarted after a crash. **[6]**

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Seat No.	

T.E. (CSE) (Part - III) (Semester - VI) (New) Examination, May - 2018
STORAGE NETWORKS
Sub. Code :66861

Day and Date : Saturday, 12 - 5 - 2018 **Total Marks : 100**

Time : 2.30 p.m. to 5.30 p.m.

Instructions :
1) **Figures to the right indicate full marks.**
2) **Question No.4 & Question No.8 are compulsory.**
3) **Attempt any two questions from Q.1 to Q.3 and from Q.5 to Q.7.**

Q1) a) Explain Disk Drive Components in detail? **[8]**

b) Describe benefits of NAS in detail? **[8]**

Q2) a) Explain cache mirroring and cache vaulting in Intelligent Storage System? **[8]**

b) Explain the different components of SAN? **[8]**

Q3) a) Explain the different Fibre Channel Topologies? **[8]**

b) Discuss iSCSI components & connectivity? **[8]**

Q4) Attempt Any Three. **[18]**

a) DAS (Direct Attached Storage)

b) RAID Level 5

c) Read & Write in cache,

d) Factors affecting NAS

P.T.O.

Q5) a) Explain any four implementation consideration of Virtualization entity? **[8]**

b) With suitable diagram explain Symmetric Storage Virtualization? **[8]**

Q6) a) Discuss following business continuity terminologies? **[8]**

i) Disaster Recovery

ii) Disaster Restart

iii) Recovery point objective

iv) Recovery Time Objective

b) Explain any two backup technologies? **[8]**

Q7) a) Which are the limitations of non - virtualized Storage Networks? **[8]**

b) With suitable example explain Backup Granularity? **[8]**

Q8) Attempt any three. **[18]**

a) Measurement of Information Availability.

b) Business Impact Analysis

c) Full Volume mirroring

d) Storage Security Domains

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Seat No.	

T.E. (CSE) (Part - II) (Semester - VI) Examination, May - 2018

INFORMATION SECURITY

Sub. Code : 66862

Day and Date : Tuesday, 15 - 05 - 2018 **Total Marks : 50**

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

Instructions : **1)** **Q. 3 and Q. 6 are compulsory.**

2) **Solve any one out of Q. 1, Q. 2 and Solve any one out of Q. 4, Q. 5.**

3) **Assume suitable data wherever necessary.**

Q1) a) Describe the Security Attacks and explain the model for Network Access Security with neat diagram. **[6]**

b) List and explain the basic principles of block cipher design. **[6]**

Q2) a) Describe the RSA algorithm. In a public key system using RSA, you intercept the ciphertext C = 14 sent to a user whose public key is **e=7**, **n=33**. **[6]**

b) In what way, the Diffie Hellman key exchange is prone to the man-in-the-middle attack. **[6]**

Q3) a) What is Substitution technique? Given a key: **BREAKDOWN** Construct the Playfair matrix & perform the encryption of the following text: **We are discovered**. **[6]**

b) Explain Simple Hash functions? Explain the security of Hash functions in detail. **[7]**

P.T.O.

Q4) a) Draw a figure and explain the DSS signing and verifying functions in details. **[7]**

b) Explain multi realm authentication in Kerberos authentication system. **[6]**

Q5) a) Give overview of IPSec architecture. **[6]**

b) Explain design goals of firewalls in detail. **[6]**

Q6) Write a short note on any two. **[12]**

a) Distributed Intrusion Detection.

b) Password Management.

c) S/MIME.