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

Day and Date : Monday, 19- 11 - 2018

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

Total Marks : 50

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 indicate full marks.
3) Assume suitable data if necessary.

**Q1)** a) Define parallel and perspective projections. Explain Orthographic projection in detail [6]

b) Explain Run Length Encoding technique. [6]

**Q2)** a) Explain Scan line seed fill algorithm. [6]

b) Explain with the help of transformation matrix the procedure to rotate an object about an axis parallel to coordinate axis [6]

**Q3)** a) Explain Bresenham's line drawing algorithm with suitable example. [7]

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

**Q4)** a) Explain the following tests to find the relation between polygon and the window in Warnock algorithm
   i) Infinite line test
   ii) Angle count test [6]

b) Explain basic ray tracing algorithm. [6]

**Q5)** a) Explain parametric representation of cubic spline curve segments. [6]

b) What is warping? Explain feature based image warping. [6]

**Q6)** a) Explain the steps to construct an animation sequence. [7]

b) Explain Phong specular reflection model. [6]

Ⓘ Ⓘ Ⓘ

Seat No.

T.E. (CSE) (Semester - V) Examination, November - 2018
# SYSTEM PROGRAMMING
### Sub. Code : 66294

Day and Date : Thursday, 22 - 11 - 2018                     Total Marks : 100
Time : 10.00 a.m. to 01.00 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 right indicate full marks.

*Q1)* a)  Discuss the fundamentals of language processing.                [8]

   b)  What are the Data structures used in Pass I of Assembler?           [8]

*Q2)* a)  State and explain various advanced macro facilities with an example each.
                                                                           [8]

   b)  Compare between Varient I and Varient II of Intermediate Code.      [8]

*Q3)* a)  Discuss in detail processing of declarations and assembler directives.[8]

   b)  Explain different data structures of the macro preprocessor with its
       contents in detail.                                                 [8]

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

   a)  LC processing.

   b)  Intermediate Code Forms.

   c)  Macro Definition and Call.

*P.T.O.*

*Q5)* a) Give components of Interpreters and Explain Use of Interpreter. [8]

b) Discuss in detail; aspects of compilation. [8]

*Q6)* a) Explain Design of Linker. [8]

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

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

b) Explain Programming Environment S/W System. [8]

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

a) Command Dialogs.

b) Parameter passing mechanism.

c) UI Structure.

d) Text Editors.

▽ ▽ ▽ ▽

Seat
No.

### T.E. (CSE) (Semester - V) (Revised) Examination, November - 2018
## COMPUTER ALGORITHM
### Sub. Code : 66296

Day and Date : Wednesday, 28 - 11 - 2018                    Total Marks : 100
Time : 10.00 a.m. to 01.00 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)   Explain the Divide and Conquer approach for Quick Sort and write its algorithm                                                          [8]

   b)   Define and Explain Asymptotic Notations with the help of example   [8]

**Q2)** a)   Solve the following instance of knapsack 0/1                       [8]
      $n=4$, $(w_1, w_2, w_3, w_4) = (10,15,6,9)$ and $(p_1,p_2,p_3,p_4) = (2,5,8,1)$ capacity $m = 11$

   b)   Prove that the complexity of finding Minimum Maximum Algorithm is $(3n/2)-2$                                                                [8]

**Q3)** a)   What is the Solution generated by the function Job sequencing with deadlines when $n=7$ Profits $= (3,5,20, 18,1,6,30)$ and deadlines$=(1,3,4,3,2,1,2)$ [8]

   b)   Explain dynamic programming solution to travelling sales person problem.
                                                                             [8]

**Q4)** Write short note on                                                  [18]
   a)   Optimal Binary Search Tree
   b)   Reliability design
   c)   Minimal spanning trees

**Q5)** a)   What is node cover decision problem? Show that clique decision problem is reducible to node cover decision problem.                            [8]

   b)   What is deterministic list ranking problem in PRAM? Explain with example.                                                               [8]

*P.T.O.*

**Q6)** a) What is P, NP, NP-complete and NP-Hard problems? Explain their relationship with neat diagram. **[8]**

b) Let w [1:5] = {1, 2, 5, 6, 8}, m=9. Find all possible subsets of w that sum equal to m. Draw portion of state space tree that is generated. **[8]**

**Q7)** a) Explain BFS and DFS with suitable example. **[8]**

b) Explain prefix sum computation with the help of Mesh. **[8]**

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

a) AND-OR graph

b) Hamiltonian cycle

c) Butterfly Network

�֍ �֍ ✖

Seat
No.

T.E. (Computer Science and Engg.) (Semester - V) Examination,
(Revised) November- 2018
**NETWORK TECHNOLOGIES**
Sub. Code : 66297

Day and Date : Friday, 30 - 11 - 2018                     Total Marks : 50
Time : 09.30 a.m. to 11.30 a.m.

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 location updating in GSM? Explain the steps involved in it. [6]

      b)     Explain different types of WLAN security problems.                 [4]

      c)     Explain the classification of MAC protocol for Ad hoc wireless
             network.                                                           [4]

*Q2)* a)     What is handoff? Explain Intra - BSC handover in GSM.              [6]
      b)     Explain different access codes used by Bluetooth enabled devices. [6]

*Q3)* a)     What is WEP? Explain WEP encryption and decryption process.       [6]
      b)     Write a note on IEEE 802.15.3 standard.                           [6]

*Q4)* a)     Explain Mobile IP.                                                [6]
      b)     Explain physical layer issues of wireless sensor networks.        [6]

*Q5)* a)     Write a note on tunneling protocols used in VPN.                  [6]
      b)     Explain MAC layer issues of wireless sensor networks.            [6]

ΟΟΟ

Seat
No.

# T.E. (Computer Science and Engineering)
## (Semester – V) (Revised) Examination, November – 2018
## OBJECT ORIENTED MODELING AND DESIGN
### Sub. Code : 66295

Day and Date : Monday, 26 - 11 - 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 three models of OMT.

   b)    Explain different components of data flow diagram.

   c)    Explain following terms with respect to system design

       i)    Layers

       ii)    Partitions

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

   a)    Explain following terms with respect to object modeling

       i)    Operations and methods

       ii)    Multiplicity

   b)    Explain nested state diagrams.

   c)    Explain the impacts of an object oriented approach.

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

   a)    Explain structural things in UML.

   b)    Explain activity diagram with example.

   c)    What is component? Explain types of components.

**P.T.O.**

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

    a)    Explain different behavioral diagrams with their purpose.

    b)    Explain following terms with respect to sequence diagram

        i)    Object lifeline

        ii)    Focus of control

    c)    Explain the following terms with respect to architectural modeling

        i)    Node

        ii)    Collaboration

        iii)    Pattern

● ● ●

**Seat No.**

T.E. (CSE) (Part - II) (Semester - VI) Examination, November- 2018
**COMPILER CONSTRUCTION (Revised)**
**Sub. Code : 66858**

Day and Date : Monday, 12 - 11 - 2018      **Total Marks : 50**
Time : 2.30 p.m. to 04.30 p.m.

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

## SECTION - I

*Q1)* a)   List and describe different Cousins of Compiler.      [4]

**OR**

Write a note on grouping of phases and passes.

     b)   Explain input buffering in Lexical Analysis.      [6]

*Q2)* a)   Explain the Role of Lexical analyzer.      [6]

**OR**

What is operator precedence grammar? Write algorithm for operator precedence parsing.

     b)   $S \rightarrow iEtS|iEtSeS|a$

$E \rightarrow b$

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

*Q3)* Construct the LR (1) parsing table for the following grammar:      [5]

$S \rightarrow CC$

$C \rightarrow cC$

$C \rightarrow d$

*P.T.O.*

## SECTION - II

**Q4) a)** Explain with example: [6]

    i)    Inherited attributes:

    ii)    Synthesized attributes.

### OR

Define Dependency Graph. Describe methods for evaluating the semantic rules.

**b)** What are the principle sources of code optimization? [4]

**Q5) a)** Write the code generation algorithm and working of the function getreg.[6]

### OR

With respect to generating code from DAGs explain node listing algorithm and Labeling algorithm.

**b)** What are the criteria for code improving transformations? [4]

**Q6)** What are register and address descriptors. Generate target code sequence for following three address code along with register and address descriptor details. [5]

t=a+b

u=a−c

v=t+u

d=v+u

○○○

Seat No.

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

Day and Date : Wednesday, 14 - 11 - 2018     Total Marks : 50
Time : 02.30 p.m. to 04.30 p.m.

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

**Q1)** Attempt any three questions.     [3 × 6 = 18]

   a)   What is a database? Explain any four advantages of database management system.

   b)   What is Normalization? Explain 1NF and 2NF with an example.

   c)   List and explain the various database users.

   d)   Explain aggregate functions in SQL with an example for each.

**Q2)** Solve any one question.     [1 × 7 = 7]

   a)   Construct an ER diagram for car insurance company. Explain step by step process.

   b)   Explain DDL commands with proper syntax.

**Q3)** Attempt any two questions.     [2 × 5 = 10]

   a)   What is a lock? Explain lock-compatibility matrix.

   b)   State and explain various classes of failures in a database system.

   c)   What is serializability? Explain view serializability in detail.

**Q4)** Write short notes on (any three):     [3 × 5 = 15]

   a)   Static Hashing

   b)   Concurrency control

   c)   Two phase locking protocol

   d)   Concurrency Control with optimistic methods.

※ ※ ※

T.E. (CSE) (Semester - VI) Examination, November - 2018
**INFORMATION SECURITY**
Sub. Code : 66862

Day and Date : Friday, 16 - 11 - 2018
Time : 02.30 p.m. to 04.30 p.m.

Total Marks : 50

Instructions : 1) Solve any two out of Q.1, Q.2, Q.3 and solve any two out of Q.4., Q.5, Q.6
2) Assume suitable data wherever necessary.

*Q1)* a) Explain the transposition ciphers with examples. [6]
b) Explain with neat block diagram, a single round of DES algorithm. [6]

*Q2)* a) How can public key cryptography be used to distribute the secret keys? [6]
b) Explain Diffie Hellman key exchange algorithm Users A and B use the Diffie-Hellman key exchange technique with a common prime q=11 and a primitive root $\alpha = 2$ [6]
i) If user A has a private key YA = 9, what is A's public key XA?
ii) If user B has a public key YB = 3, what is the shared secret key k?

*Q3)* a) Write short notes on (any two) [6]
i) Steganography
ii) Avalanche effect
iii) RSA algorithm
b) What is message authentication? In what way, are the Hash functions used to provide message authentication. [7]

*Q4)* a) Compare between the traditional DSS approach and RSA approach in terms of their working. [6]
b) List and define the parameters that define secure socket layer (SSL) session state and ssl connections. [6]

*Q5)* a) Explain Encapsulating security Payload (ESP) service in IPSec. [7]
b) Describe different firewall configurations. [6]

*Q6)* a) What is motivation behind Kerberos? State Kerberos requirements. [6]
b) Describe the functions provided by S/MIME [6]

〇〇〇

Seat
No.

### T.E. (CSE) (Semester - VI) (Revised)
### Examination, November - 2018
### OPERATING SYSTEM - II (New)
### Sub. Code : 66859

**Day and Date : Tuesday, 13 - 11 - 2018**

**Time : 02.30 p.m. to 05.30 p.m.**

Total Marks : 100

**Instructions :**
1) Question No.4 and Question No. 8 are compulsory. Solve any four questions from remaining questions.
2) Figures to the right indicate full marks.
3) Clearly mention your assumed data wherever necessary.

**Q1) a)** List and explain advantages and disadvantages of buffer cache. **[8]**

**b)** Explain the process of conversion of pathname to i-node with algorithm namei. **[8]**

**Q2) a)** List various fields of disk inodes. Draw and explain sample disk inode with respect to these fields. **[8]**

**b)** Write and explain the algorithm for OPEN system call to open a file. **[8]**

**Q3) a)** What are pipes? Explain the algorithm "pipe" for creation of unnamed pipes: **[8]**

**b)** With a neat schematic of hash queue headers and free list updates, explain the following scenario for the buffer retrieval : **[8]**

"The kernel cannot find the block on the hash queue and in attempting to allocate a buffer from the free list, finds a buffer on the free list that has been marked "delayed write". The kernel must write the "delayed write" buffer to disk and allocate another buffer."

*P.T.O.*

*Q4)* Write short note (Any Three) [3 × 6 = 18]

   a) Operating System Services

   b) Super Block

   c) chown and chmod

   d) File system maintenance

*Q5)* a) Which are major regions in virtual address space of a process? Explain in detail with a neat diagram. [8]

   b) Write and explain the algorithm "issig" for recognizing signals. [8]

*Q6)* a) What is the use of fork system call? Explain the sequence of operations that kernel executes for fork. [8]

   b) Explain algorithm "malloc" for allocating space from maps. [8]

*Q7)* a) What are terminal drivers? Explain the functions of a line discipline. [8]

   b) What is context of a process? Explain with diagram components of the context of a process. [8]

*Q8)* Write short note (Any Three) [3 × 6 = 18]

   a) u area and its fields

   b) Demand paging

   c) ioctl system call

   d) System boot and the init process

● ● ●

Seat
No.

# T.E. (CSE) (Semester - VI) Examination, November-2018
## STORAGE NETWORKS (New)
### Sub. Code : 66861

**Day and Date : Thursday, 15 - 11 - 2018**          **Total Marks : 100**
**Time : 02.30 p.m. to 05.30 p.m.**

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

## SECTION - I

**Q1) a)** Explain the Core Elements of Data Center. Describe how to manage storage infrastructure. **[8]**

**b)** Explain following in relation with Information Lifecycle. **[8]**
   i) Information Lifecycle management (ILM)
   ii) ILM Implementation
   iii) ILM Benefits

**Q2) a)** Explain striping, mirroring and parity technique. **[8]**

<div align="center">OR</div>

Solve the following, **[8]**

   i) The average I/O size of an application is 128 KB. The following specifications are available from the disk manufacturer: average seek time = 10 ms, 7,200 RPM, transfer rate = 60 MB/s. Determine the maximum IOPS that could be performed with this disk for this application.

   ii) Taking this case as an example, explain the relationship between disk utilization and IOPS.

**b)** Solve the following, **[8]**

Consider that, the capacity requirements for an application is 1.46 TB. The peak workload generated by the application is estimated at 9000 IOPs. The vender specifies that a 146GB, 15000rpm drive is capable of a maximum of 180 IOPS (U=70%) Find number of Disks required to meet the application demand.

<div align="right"><i>P.T.O</i></div>

*Q3)* a) Explain front end command queuing techniques in Intelligent storage System. How the Read and Write operations are performed with cache?[8]

b) What are the different types of DAS? Explain SCSI Command Model.[8]

*Q4)* Solve **ANY TWO** of the following questions.

a) Describe Fibre Channel connectivity and fibre channel ports. Explain Fibre Channel Protocol Stack. [9]

b) Explain different Network attached storage implementations. Describe NAS File-Sharing Protocols Explain NAS I/O Operations. [9]

c) Explain Components of iSCSI, iSCSI Host Connectivity, Topologies for iSCSI Connectivity, iSCSI Protocol Stack, iSCSI Discovery and iSCSI session. [9]

## SECTION - II

*Q5)* a) Explain symmetric and Asymmetric Storage Virtualization in Network.[8]

b) Explain the following, [8]
   i) information availability
   ii) Reliability
   iii) Accessibility
   iv) Timeliness

*Q6)* a) What are the objectives of virtualization? [8]

b) Explain how data consistency is achieved in local replication. [8]

*Q7)* a) Explain storage virtualization in the server. [8]

b) Describe various types of Backup and Restore Granularities with examples. [8]

*Q8)* Attempt Any **TWO** of the following.

a) Explain Storage Virtualization in I/O Path and storage devices. [9]
b) Explain different Backup Topologies [9]
c) Explain BC terminology and life cycle. [9]

⛉ ⛉ ⛉