# Short Attendance Assignment

| Attendance | No. of Question |
|---|---|
| **Between 60-74** | **2 Question from each unit and from each subject** |
| **Between 50-59** | **3 Question from each unit and from each subject** |
| **Between 35-49** | **4 Question from each unit and from each subject** |
| **Below 35** | **5 Question from each unit and from each subject** |

## THEORY OF COMPUTATION

### Unit -1

Q1. What do you understand by F.S.M. Explain it mathematically?

Q2. Differentiate between DFA and NFA.

Q3. Design finite automata for input symbol {0, 1} where number of zero's must be even.

Q4. Define pumping lemma for regular language.

Q5. What is regular expression? Design a FSM for a following regular expression.

**(a+b)\*. (a.b)$^+$**

### Unit -2

Q1. What are the different types of grammar?

Q2. Explain Parse tree. How ambiguity of any grammar can be checked.

Q3. What are the steps to simplify any grammar?

Q4. Explain CNF and GNF of Grammar.

Q5. Convert the following grammar into GNF

S→ AB

A→ aAa | Aa | bAb | a

B → aBa | Bb | bBb | b

### Unit 3

Q1. Design a PDA for input symbol {0, 1} where count of each symbol must be same.

Q2. Explain push down automata.

Q3. Explain the properties of context free language.

Q4. Convert the following grammar into PDA.

S→ AB

A→ aAa | Aa | bAb | a

B → aBa | Bb | bBb | b

Q5. Define pumping lemma for context free language.

### Unit 4

Q1. Design a PDA for input symbol {0, 1, 2} where count of each symbol must be same.

Q2. What is universal turing Machine?

Q3. What is church hypothesis?

Q4. Explain the different types of turing machine.

Q5. Design a turing machine to calculate the $1's$ complement of binary number.

## Unit 5

Q1. Define P and NP Problem.
Q2. Define NP complete and NP Hard problem.
Q3. Design a turing machine to calculate 5*2
Q4. Explain how turing machine is powerful than FSM.
Q5. Explain the steps to convert regular grammar into FSM.

# DBMS

## Unit 1

Q1. What is Data model? Explain various types of data models?
Q2. Explain the Architecture of DBMS?
Q3. Explain Concept of Generalization, Aggregation and Specialization?
Q4. What is DBA? Explain function of DBA?
Q5. What is DBMS? Explain the Advantage of DBMS?

## Unit 2

Q1 what is Key? Explain different types of keys?
Q2 what is relation algebra? Explain various types of algebra operations?
Q3 what is relational calculus? Explain various types of relational calculus?
Q4 what is join?  Explain various types of join?
Q5 Explain integrity constraint?

## Unit 3

Q1 what is normalization? Explain various types of normalization?
Q2 what is Functional dependency?
Q3 Explain Decomposition, Dependency preservation and lossless join?
Q4 what is Query Optimization? Explain steps of optimization?
Q5 explain various algorithms to implement select, project and join operations of relational Algebra?

## Unit 4

Q1 Explain Transaction Processing Concepts?
Q2 compare OODBMS Vs DBMS?
Q3 Explain Serilizability and Concurrency Control?
Q4 Explain distributed database?
Q5 Explain the following –
   a) Temporal data base
   b) Mobile database
   c) Multimedia and web database

d) Data mining
e) Data warehousing

## Unit 5

Q1 Explain Relational Database Management Systems through Oracle?
Q2 what is Cursor? Explain Cursor management?
Q3 Explain Architecture, physical files, memory structures, background process of SQL?
Q4 what do you mean by Oracle exception handling mechanism?
Q5 Explain concept of trigger with example?

## COMPUTER GRAPHICS & MULTIMEDIA

### Unit 1:

Q1. Differentiate between raster scan and random scan system?
Q2. Explain filling primitives? Describe boundary and flood fill algorithm?
Q3. Using the DDA line drawing algorithm, find out the successive points that will be plotted by drawing a line (7,5) to (13,9)?
Q4. Derive the decision parameter to draw line using Bresenham's algorithm?
Q5. Digitize a line from point (-1,-1) to point (4, 5) using bresenham's line generation algorithm?

### Unit 2:

Q1. What do you understand by geometric transformation? Also define the following operation performed by it-
        i)        Translation        ii) Rotation        iii) Scaling        iv) Reflection    v) Shearing
Q2. Why are homogeneous coordinate system used for transformation computation in computer graphics?
Q3. Magnify the triangle with vertices A(0,0),B(1,1) and C(5,2) to twice its size while keeping  C(5,2) fixed?
Q4. Explain Cohen Sutherland clipping algorithm?
Q5. Define window, viewport, user and screen coordinate. Derive window to viewport transformation matrix?

### Unit 3:

Q1. Explain Projection? Differentiate Parallel and Perspective projection?
Q2. Explain Painters algorithm? And their applications in hidden surface elimination algorithm?
Q3. Explain Z-buffer algorithm?
Q4. Explain the properties of Bezier and B-Spline curve generation?
Q5. Find the transformation matrix for rotation 3-D object an arbitrary axis?

### Unit 4:

Q1. Explain specular reflection. Is there any relation of surface texture with the type of reflection produced on the exposure of that surface to some light source? Explain with the help of diagram and suitable mathematical equations?
Q2. Describe Gouraud shading model? Explain interpolation scheme with example?
Q3. Explain diffuse reflection model? Explain cosine law also?
Q4. Explain YIQ color model?
Q5. Write the short note on RGB and CMY?

**Unit 5:**

Q1. What are the components of multimedia system?
Q2. What are the different types of storages devices available in multimedia hardware?
Q3. Explain the various data and file format standards?
Q4. Explain Authoring tools of Multimedia and animation?
Q5. Describe animation and their application? Explain each application?

## OPERATING SYSTEM

**Unit 1:**

Q1. What is OS? Explain its goal.
Q2. What are the types of the OS?
Q3. Explain the spooling and buffering.
Q4. What is the difference between the multiprogramming and multitasking?
Q5. What are the services provided by the OS?

**Unit 2:**

Q1. Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 143 and the previous request was 125. The queue of the pending request in FIFO order is: 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130. What is the total head distance ( in cylinders) that the disk arm moves to satisfy all pending request using FCFS, SSTF, SCAN, C-LOOK.
Q2. Suppose that head of the moving head disk with 200 tracks numbered 0 to 199 is currently serving the request at 50 tracks and has just finished a request at track 85. If the queue of the request is kept in FIFO order: 100,199, 56, 150, 25, 155, 70, and 85. A seek time takes 6 ms per cylinder moved. How much seek time is needed for the following: FCFS, SSTF, SCAN, LOOK.
Q3. What are the file allocation methods? Explain.
Q4. How the free space can be managed in the OS?
Q5. What is the use of disk scheduling? Explain with example.

**Unit 3:**

Q1. Explain the process control block?
Q2. What is process state diagram? Explain.
Q3. What are the types of CPU scheduling?
Q4. What is deadlock? What are the conditions for the deadlocks?
Q5. What is critical section problem and dinning philosopher problem?

**Unit 4:**

Q1. What the types of memory management?
Q2. Explain the physical and logical address.

Q3. Explain the paging with example.
Q4. Explain the virtual memory concept with example.
Q5. What is the difference between the paging and segmentation?


## Unit 5:

Q1. What is distributed OS?
Q2. What are the types of distributed OS?
Q3. What are the types of attacks? Explain.
Q4. Define the following:   1. Virus.  2. Trojan horse.        3.  Worms.
Q5. Explain the concept of parallel processing.

### DATA COMMUNICATION

**Unit -1**
 Explain the following terms in details
- (i)       Network topologies
- (ii)      Image and multimedia compression
- (iii)     Osi layers
- (iv)      Composite analog signal
- (v)       Data rate limits –noise less channel

**Unit-2**
- Explain the following terms in details.
- (i)       Adsl lite
- (ii)      Hdsl
- (iii)     Fdm
- (iv)      Tdm
- (v)        Cmts

**Unit-3**
- Explain the following terms in details
- (i)       Crc
- (ii)      Vrc
- (iii)     Lrc
- (iv)      Chechsum
- (v)       Go-back n automatic repeat request

**Unit – 4**
Explain the following terms in details
- (i)       X.25
- (ii)      Random access- aloha
- (iii)     Csma
- (iv)      Csma/ca
- (v)       cdma