Question Bank for Computer Application

Semester-1:

Paper code: 102

Computer Fundamentals & Office Automation:

Short Questions:

1. Explain any four input devices.
2. Explain any four output devices.
3. Explain the types of memory in detail.
4. What is computer? Explain its characteristics.
5. Write different types of primary memory.
6. Write types of computer.
7. What do u mean by computer languages?
8. Write different types of computer languages.
9. Give types of printer.
10. State difference between RAM and ROM.
11. Explain any two windows application in detail.
12. List out various features of M.S. WINDOWS.
13. Explain Notepad.
14. Explain Paintbrush.
15. Explain Mail Merge.
16. Define the steps to highlights the text.
17. How to change the font style.
18. How to make presentation in MS-power point.
19. Give the steps to closing the Document.
20. How to delete a slide in presentation?
21. Compare Header and Footer in a Document.
22. Explain how to move and delete a text.
23. Why computer known as data processing system?
24. What is data and information?
25. What are the basic operations of Computer?
26. Give the applications of the Computer.
27. What is the classification of the Computer System?
28. Who is the Father of computer?
29. How many generations of computer are there?
30. Name input devices.
31. Name output devices.
32. What is an ALU?
33. Full form: 1.ALU 2.UNIVAC 3.EDSAC
34. What is a CPU?
35. What is personal computer?
36. What is software?
37. What is hardware?
38. What is an algorithm?
39. What is memory?
40. What is volatile and non-volatile memory?
41. What is primary memory?
42. What is secondary memory?
43. What is the Components of computer?
44. What is an IC?
45. Short note on primary storage.
46. Short note on cache memory.
47. Short note on Secondary memory.

48. Write types of computer.
49. What is number system?
50. What is microprocessor?

Long Questions:

1. Write generation of computer.
2. Explain block diagram of computer in detail.
3. What do u mean by data organization- Explain it with an ex.
4. Explain the types of memory in detail.
5. What do u mean by computer languages- Explain compiler, interpreter.
6. Explain different types of computer languages.
7. What is an assembly language- Explain its advantages and disadvantages
8. Define Algorithm and explain its uses.
9. What are the advantages of writing algorithm-
10. Define flowchart and its uses.
11. List out principles of flowchart.
12. Explain flowcharting symbols.
13. Write an algorithm and flowchart to print sum and average.
14. Write an algorithm to print first N prime numbers.
15. Write an algorithm and flowchart to find the greatest among two nos.
16. Write an algorithm and flowchart to find the greatest among
17. Write an algorithm and flowchart to find the area and circumference
18. Write an algorithm and flowchart to find the area and perimeter
19. Write an algorithm and flowchart to find the even and odd nos.
20. Write an algorithm and flowchart to find the given no is positive or not.
21. Write an algorithm and flowchart to swap the two nos.
22. Write an algorithm and flowchart to convert temperature in Celsius
23. Write an algorithm and flowchart take digit from user and display
24. Write an algorithm and flowchart enter year from user and check.
25. Write short notes on i) Start button ii) taskbar iii) status bar.
26. Write features, usage of MS WORD.
27. Write features, usage of MS EXCEL.
28. Write features, usage of MS POWERPOINT.
29. Write features, usage of MS ACCESS.
30. What do you mean by chart? Explain various types of charts in MS EXCEL.
31. What do u mean by slide animation.
32. What do u mean by slide transition?
33. Explain views in Power Point.
34. Define Clients and Servers. In details.
35. Write features of DOS operating system.
36. Explain booting process in DOS.
37. Explain batch file with an example.
38. Write any five Internal DOS Commands with syntax
39. Write any five External DOS Commands with syntax
40. Write function of DOS OS.
41. Write various types of OS.
42. Write features of Windows OS.
43. Explain files and directories in DOS.
44. Explain following. i) ECHO ii) EXIT iii) GOTO iv) MKDIR
45. List little application software.
46. What is the difference between program and algorithm.
47. Explain the evolution of computers.
48. State and explain the various steps involved in development of a software.
49. Differentiate between application software and system software.
50. What is pseudo code? How does it differ from flowchart? write a pseudo code.

Paper code: 103

C Language:

Short Questions:

1. Define Constant and Variable in C with example.
2. What is the use of 'break' & 'continue' statements?
3. Define Union. Give its syntax.
4. Define function prototype. Give its syntax.
5. What is the general form of declaring and opening a file?
6. Difference between getchar() and scanf().
7. Write about goto statement.
8. What is an array give an example.
9. Define function
10. What are function used in memory allocation in c
11. What is an expression?
12. What is library function?
13. What is use of break stat
14. What is conditional operator?
15. What is structure
16. Type of operator
17. Diff bet call by reference call by value
18. What is pre-processor?
19. Define a variable
20. What is looping?
21. What is string concatenation function
22. What is the use of indirection operator
23. Write the syntax for getchar() function
24. Explain Data types in C with example.
25. Write a note on input and output statements in C.
26. Describe about storage classes.
27. Write a C Program to find sum of even integers between 1 and n.
28. Give syntax and explain any four string handling function
29. Define Structure. Explain its syntax with example.
30. Explain call by value and call by reference.
31. Write a note on array of Pointers.
32. Write a note on printf( ) & scanf( ) functions.
33. Describe about Dynamic memory allocations in C.
34. Define Operators. Explain types of Operators in C with example.
35. Explain Control Statement with syntax and example.
36. Define Array. Write a Program for Matrix Multiplication.
37. Explain Pointers with Functions. Give example.
38. Write a C program to create a file for Students information and calculate Total, Average and Grade for the Student.
39. What is pointer?
40. What is IF statement?
41. Types of operator.
42. History of c programming.
43. What is string?
44. What is Do While loop?
45. What is Switch case?
46. What is while loop?
47. What is branching statement?
48. What is linked list?
49. What is function?
50. Write four arguments of function.

Long Questions:

1. Explain the basic structure of C program with example.
2. Describe the basic data type in C
3. Elaborate the types of IF statement
4. Write a note on switch statement with example
5. What is string? Write any four string function with examples
6. Write a program to print multiplication table using two dimensional array
7. Write a note on pointers in array
8. Explain how to handle pointers in functions
9. Explain how to define macros with arguments
10. What is linked list? Describe how to insert an element in a list
11. Write in brief the operations in c programming
12. Explain looping statement with syntax and example
13. Brief about structure in c with example
14. Discuss about different categories of function
15. Write about random access files with example
16. What is statement? Explain the three classes of statement in c
17. Write a note on i/o functions in c
18. Write a c program to check whether the given string in palindrome or not
19. Explain the storage class
20. Write a c program to sort the given set of N numbers
21. What is pointer? How pointers are declare in c
22. What is bitwise operator ? give example
23. What is the use of break statement ? give an example.
24. Describe the four data types in c
25. Explain the uses of various control statements in c with example
26. Explain the do while loop in c
27. How to pass an array to a function? Explain with an example
28. List the important file handling functions in c
29. Write the function which is used to read a single character? Explain it with example
30. Define constant. Explain their types with example
31. Explain nested if else with example
32. Explain static variable with example
33. Discuss structure and union with example
34. Write a program to find the smallest number in an array
35. What is recursive functions and explain with example
36. Explain pointer and character string
37. Explain printf() and scanf() function with example
38. Write the application of linked list.
39. Discuss formatted input statement with example
40. Briefly explain the looping statements available in c
41. Write a c program to arrange the given number in ascending order
42. Explain the categories of function with example
43. Describe random access files with example
44. What are the data types available in c? explain
45. Write a note on i/o function in c
46. Write a c program to sort n number
47. Explain goto statement in c
48. Write c program to find the length of the given string.
49. What is union ? how to declare it in c?
50. Write note on pointers and function.

Semester-2:

Paper code: 202

Data Structures:

Short Questions:

1. Define linked list.
2. Define: Data structure.
3. Define: Stack
4. What is meant by data?
5. Write short notes on array.
6. Expand the following 1.LIFO 2.FIFO
7. What is binary tree?
8. Define Linear Search.
9. List out the basic operations on single linked list.
10. Define recursion.
11. What is the time complexity of binary search?
12. What are linear and non linear data Structures?
13. What are the various operations that can be performed on different Data Structures?
14. How is an array different from linked list?
15. What is stack and where it can be used?
16. What is a queue?
17. What is infix, prefix, postfix notations?
18. What are the types of linked list?
19. What is BFS and DFS of a graph?
20. How to implement a stack using queue?
21. How to implement a queue using stack?
22. Which Data Structure Should be used for implementing LRU cache?
23. How to check if a given Binary Tree is BST or not?
24. Which data structure is used for dictionary and spell checker?
25. Differentiate between file and structure storage structure.
26. When is a binary search best applied?
27. How do you reference all the elements in a one-dimension array?
28. In what areas do data structures are applied?
29. What is LIFO?
30. What are binary trees?
31. Which data structures are applied when dealing with a recursive function?
32. What are multidimensional arrays?
33. How does dynamic memory allocation help in managing data?
34. What is FIFO?
35. What is an ordered list?
36. What is merge sort?
37. Differentiate NULL and VOID
38. What is the primary advantage of a linked list?
39. What is the difference between a PUSH and a POP?
40. What is a linear search?
41. How does variable declaration affect memory allocation?
42. What is the advantage of the heap over a stack?
43. What is a postfix expression?
44. What is Data abstraction?
45. How do you insert a new item in a binary search tree?
46. How does a selection sort work for an array?
47. How do signed and unsigned numbers affect memory?
48. What is the minimum number of nodes that a binary tree can have?
49. What are dynamic data structures?

50. In what data structures are pointers applied?

Long Questions:

1. Explain the operations of data structure.
2. Give the advantage of list over array.
3. How do you represent linked list in memory?
4. Write the PUSH and POP operations of stack.
5. Write the procedure to evaluate postfix expression.
6. Write any one tree traversal algorithm using stack.
7. Describe about selection sort.
8. Write a note in Radix sort.
9. Describe about elementary data organisations and data structures.
10. Write a procedure to delete a node following a given node in a linked list.
11. Write a procedure to convert infix expression into postfix form.
12. How do you represent a graph in memory?
13. Explain about merge sort with example.
14. How do you represent linear arrays in memory?
15. Write a note on Garbage Collection.
16. Write a procedure to insert an item into a queue.
17. What is recursion? Write a recursive procedure for factorial calculation.
18. Write the procedure for traversing binary tree.
19. How do you represent a graph by using adjacency matrix.
20. Describe about insertion sort.
21. Write a procedure to insert and item into a linked list after a given node.
22. Explain about the procedure for Towers of Hanoi Problem.
23. Describe about hashing.
24. Write short notes on operation of data structure.
25. How to traverse in linear array? Explain.
26. What are the pitfalls encountered in single linked list?
27. Write short notes on array representation of stack.
28. Briefly explain about binary tree representation.
29. Discuss about operations on array.
30. What is mean by stack? Explain.
31. Write notes on binary tree traversal.
32. What is merge sort? Explain with example.
33. Discuss about classification of Data Structure.
34. State the comparison between Array and Linked List.
35. Write an algorithm for inserting an element in Linked List.
36. Write short notes on Arithmetic Expression
37. List the Applications of Stack?
38. What is mean by Traversal? Explain
39. List out the Applications of Graph
40. Explain with example of Selection Sort.
41. What is Hashing? Explain.
42. Write notes on Asymptotic Notations of Algorithm.
43. Briefly explain about Linked List.
44. What is meant by Stack? Explain.
45. Write notes on Shortest path Algorithm.
46. What is Merge sort? Explain with example.
47. Which sorting algorithm is considered the fastest?
48. Differentiate STACK from ARRAY.
49. Give a basic algorithm for searching a binary search tree.
50. What is a bubble sort and how do you perform it?

Paper code: 204

Computer Architecture:

Short questions:

1. Mention the types of instruction formats.
2. What is instruction Pipeline?
3. Mention the parts of division algorithm.
4. Differentiate between I/O versus memory bus
5. Define Auxiliary Memory.
6. What in meant by a control word?
7. What are the acronyms for SIMD and MISD?
8. Define: Underflow.
9. Differentiate between the control and status commands.
10. State two Auxiliary memory devices used in computer systems.
11. Write any two examples for a three address instructions.
12. What are called the peripherals?
13. Differentiate Between the virtual address and physical address.
14. Write down the characteristics of RISC processor.
15. What do you mean by pipelining?
16. Draw the block diagram of BCD adder.
17. List out the peripheral devices.
18. Distinguish between synchronous bus and asynchronous bus.
19. What are the three major phases of addressing modes?
20. What is array processors?
21. Define Multiplication Algorithm.
22. What is peripheral devices?
23. Draw a block diagram of RAM chips.
24. Explain what is Computer Architecture?
25. How Computer Architecture is characterized?
26. Mention important steps for computer design?
27. Mention what are the different types of fields that are part of an instruction?
28. Mention what are the basic components of a Microprocessor?
29. Mention what are different types of interrupts in a microprocessor system? Explain?
30. Mention what are the common components of a microprocessor are?
31. Explain what is Snooping Cache?
32. Mention what is the simplest way to determine cache locations in which to store memory blocks?
33. What digital functions should be used to convert the octal code to binary code?
34. What technique is used to automatically move program and data blocks into the physical main memory when they are required for execution?
35. Mention what is the use of RAID system?
36. Explain what type of memory that can be erased with the electric discharge?
37. Explain what is horizontal micro code?
38. Explain what is direct mapping?
39. Mention what are the types of micro-operations?
40. When large number of registers are included in the CPU, what is the most efficient way to connect them?
41. Explain if the internal bus connects only register within the CPU, how would you get data to and from memory?
42. Explain what is WAIT state?
43. Explain how you can deal with WAIT state?
44. What Are The Different Types Of Interrupts In A Microprocessor System explain.
45. What Is Virtual Memory In Computer?
46. State Some Of The Common Rules Of Assembly Language?
47. Explain How Many Types Of Memory In Computer Architecture?
48. What Do You Understand Vertical Micro Code, Explain The Designing Strategy Of A Control Unit Coded On Vertical Code?
49. Explain What Are The Different Hazards? How Do We Avoid Them?

50. Briefly Explain The Two Hardware Methods To Establish Priority?

Long Questions:

1. Write a short notes on General register organization.
2. Explain the Register Stack in Stack organization.
3. Discuss about the Parallel processing.
4. Enumerate the Arithmetic Pipeline.
5. Write a short note on BCD Adder.
6. Elucidate the Multiplication Algorithm.
7. Explain about the Asynchronous data transfer.
8. Give a short note on Parallel Priority Interrupt.
9. Describe about the Auxiliary memory.
10. Write a note on Main memory.
11. Discuss about the Instruction formats with example.
12. Explain about Instruction pipeline.
13. Enumerate the Division Algorithm.
14. Describe about the Input Output interface.
15. Discuss about the Cache memory.
16. Describe the register stack organization of CPU.
17. Write down the data transfer instructions.
18. What is an array processor? What are the types?
19. Illustrate the use of four segment instruction pipelining.
20. Brief about the booth algorithm for multiplication.
21. Explain the division algorithm for floating point numbers.
22. What is an I/O interface? What are the kinds of commands received by the I/O interface?
23. Describe the DMA controller.
24. Describe the Mutual Exclusion Mechanism with Semaphore.
25. How would you solve the cache Coherence Problem?
26. Discuss about the various instruction formats.
27. Explain the use and execution of an arithmetic pipeline.
28. Describe the hardware implementation and algorithm for the addition and subtraction with signed magnitude data.
29. Write down the different kinds of modes of transfer.
30. Elaborate on mapping procedures of cache memory.
31. Briefly discuss about the memory stack.
32. Enumerate the characteristics of a RISC.
33. Explain three major difficulties that cause the instruction pipline.
34. Write short notes on array processors.
35. Draw the hardware implementation of multiplication algorithm.
36. Briefly discuss the 2 bit by 2 bit array multiplier.
37. Narrate the modes of transfer.
38. Discuss briefly on the serial communication.
39. Summarize the associative mapping.
40. Enumerate the characteristics of multiprocessor system.
41. Exemplify the data transfer and manipulation instructions.
42. Explain the pipeline organization with examples.
43. Describe the hardware control for signed-magnitude addition and subtraction with flowchart.
44. Discuss on the Asynchronous Data transfer
45. Elucidate the cache memory organisation.
46. Describe the different types of addressing modes with appropriate examples.
47. Discuss in detail about the instruction pipeline with necessary diagrams
48. Explain the booth algorithm for multiplication of signed 2 complement number.
49. Elucidate the DMA controller with its block diagram
50. What is mapping process? Explain the types of mapping procedure in the cache memory organization.

Semester-3:

Paper code: 302

Operating system:

Short Questions:

1. Define System call.
2. What is an Interrupt?
3. Compare Contiguous vs Non Contiguous Storage Allocation.
4. What is Low. Level Scheduling.?
5. What is file descriptor?
6. What is an operating system?
7. How can you define the running state of a prcess?
8. What is a virtual memory?
9. What is response time?
10. Define: Record.
11. Define process control block?
12. What is interrupt clock?
13. Define spooling?
14. Write a syntax and example of for structure in shell programming.
15. Write any four important information contained in PCB.
16. What are the necessary conditions for deadlock?
17. What is the difference between pre emptive and non-pre emptive scheduling?
18. Write the formula for HRN scheduling.
19. What is the syntax of eval and expr commands in Linux?
20. Explain the main purpose of an operating system?
21. What is demand paging?
22. What are the advantages of a multiprocessor system?
23. What is kernel?
24. What are real-time systems?
25. What is a virtual memory?
26. Describe the objective of multiprogramming.
27. What is time- sharing system?
28. What is SMP?
29. How are server systems classified?
30. What is asymmetric clustering?
31. What is a thread?
32. Give some benefits of multithreaded programming.
33. Briefly explain FCFS.
34. What is RR scheduling algorithm?
35. What are necessary conditions which can lead to a deadlock situation in a system?
36. Enumerate the different RAID levels
37. Describe Banker's algorithm
38. What factors determine whether a detection-algorithm must be utilized in a deadlock avoidance system?
39. State the main difference between logical from physical address space.
40. How does dynamic loading aid in better memory space utilization?
41. What are overlays?
42. What is the basic function of paging?
43. What is fragmentation?
44. How does swapping result in better memory management?
45. Give an example of a Process State.
46. What is a socket?
47. What is Direct Access Method?
48. When does thrashing occur?
49. What is the best page size when designing an operating system?

50. When designing the file structure for an operating system, what attributes are considered?

Long Questions:

1. Write Short Notes on Layered System.
2. Explain about Client - Server Model.
3. Explain about types of Interrupt classes.
4. Write Short Notes on Mutual Exclusion.
5. Write Short Notes on Weakness in the Banker's Algorithm.
6. What is Storage Placement Strategies?
7. Write any Five Scheduling Objectives.
8. Write Short Notes on Priorities.
9. Write Short Notes on Operation on files.
10. Write Short Notes on types office Organization.
11. Explain about system call in detail.
12. Describe about the Process Concept in detail
13. Discuss in detail about Fixed Portion Multiprogramming
14. Explain about types of job and Processor Scheduling Algorithm in detail.
15. Discuss in detail about various Disk - Scheduling with Neat diagram.
16. Write a note on Peterson's Algorithm.
17. What is the role of Process synchronized semaphores?
18. How to detect the occurrences of Deadlock?
19. Summarize fixed partition Multiprogramming.
20. Why deadline scheduling is most important?
21. Briefly explain the levels of scheduling.
22. Illustrate the operation of moving head disk storage.
23. What is the role of file descriptor and access control matrix?
24. Discuss on file creation and manipulation commands.
25. Explain the following commands. 1.Echo 2.Export
26. Explain in detail about process state transition with suspend and resume.
27. Discuss the various Page replacement strategies.
28. Explain the following scheduling disciplines. 1. FIFO 2. RR 3. SJF 4. SRT 5. HRN
29. What are the various seek optimization techniques? Explain in detail.
30. Discuss in detail various control structures in Linux.
31. What is mutual exclusion? Explain briefly about it.
32. Write short note on process termination.
33. Write short notes about deadlock detection and recovery.
34. How the operating system handles the page fault? Mention their events.
35. Differentiate preemptive and non-preemptive.
36. Explain about deadline scheduling.
37. Explain any five file operations.
38. Discuss about backup and recovery concepts in file management of OS.
39. Mention the features of Linux operating system.
40. Write any four creation and manipulation commands in Linux.
41. What is producer-consumer problem? How to solve this problem by using semaphore?
42. What is page replacement algorithm? Write short notes about any four page replacement algorithm.
43. Explain the various processes scheduling of Operating System Process Management.
44. Define disk. Discuss in detail about disks.
45. Mention the categories of Linux utility programs.
46. Explain the following Operating System structures with neat diagram. 1. Monolithic 2. Layered.
47. What is Multi threading? Explain its benefits.
48. Explain Memory portioning in detail.
49. Explain the following scheduling algorithms: 1. Round-Robin 2. Deadline.
50. Explain the following File Access Mechanisms in Operating System. 1. Sequential Access 2. Random Access 3. Indexed Sequential Access.

Paper code: 304

C++ Language:

Short Questions:

1. What is C++?
2. What are the advantages of C++?
3. What is the difference between C and C++?
4. What is the difference between reference and pointer?
5. What is class?
6. What are the various OOPs concepts in C++?
7. What are the different types of polymorphism in C++?
8. Define namespace in C++?
9. Define token in C++
10. Who was the creator of C++?
11. Which operations are permitted on pointers?
12. Define std.
13. Which programming language's unsatisfactory performance led to the discovery of C++?
14. How delete [] is different from delete?
15. What is an object?
16. What is the full form of STL in C++?
17. What are the C++ access specifiers?
18. What is the difference between an array and a list?
19. What is the difference between new() and malloc()?
20. What are the methods of exporting a function for a DLL?
21. Define friend function.
22. What is a virtual function?
23. When should we use multiple inheritance?
24. What is a destructor?
25. What is an overflow error?
26. What is overloading?
27. What is function overriding?
28. What is virtual inheritance?
29. What is a constructor?
30. What is the purpose of the "delete" operator?
31. Explain this pointer?
32. What is a pure virtual function?
33. What is the difference between structures and class?
34. What is a class template?
35. What is the difference between function overloading and operator overloading?
36. What is a virtual destructor?
37. What is the basic structure of a C++ program?
38. What are the comments in C++?
39. Difference between declaration and definition of a variable.
40. Comment on local and global scope of a variable.
41. What is the precedence when there are a Global variable and a Local variable in the program with the same name?
42. When there are a Global variable and Local variable with the same name, how will you access the global variable?
43. How many ways are there to initialize an int with a Constant?
44. What is a Constant? Explain with an example.
45. How do you define/declare constants in C++?
46. Comment on Assignment Operator in C++.
47. What is the difference between equal to (==) and Assignment Operator (=)?
48. What are the various Arithmetic Operators in C++?
49. What are the various Compound Assignment Operators in C++?
50. State the difference between Pre and Post Increment/Decrement Operations.

Long Questions:

1. What are the Extraction and Insertion operators in C++? Explain with examples.
2. What is the difference between while and do while loop? Explain with examples.
3. What do you mean by 'void' return type?
4. Explain Pass by Value and Pass by Reference.
5. What are Default Parameters? How are they evaluated in the C++ function?
6. What is an Inline function in C++?
7. Why are arrays usually processed with for loop?
8. State the difference between delete and delete[].
9. What's the order in which the objects in an array are destructed?
10. What is a Reference Variable in C++?
11. What is a Storage Class? Mention the Storage Classes in C++.
12. Explain Mutable Storage class specifier.
13. What is the keyword auto for?
14. What is a Static Variable?
15. What is the purpose of the Extern Storage Specifier?
16. Explain Register Storage Specifier.
17. When to use "const" reference arguments in a function?
18. What is a Class?
19. Difference between Class and Structure.
20. What is the use of 'using' declaration?
21. What is Name Mangling?
22. What is the difference between an Object and a Class?
23. What are the various Access Specifiers in C++?
24. What is a Constructor and how is it called?
25. What is a COPY CONSTRUCTOR and when is it called?
26. What is a Default Constructor?
27. What is a Conversion Constructor?
28. What is an Explicit Constructor?
29. What is the role of the Static keyword for a class member variable?
30. Explain the Static Member Function.
31. What's the order in which the local objects are destructed?
32. Explain Function Overloading and Operator Overloading.
33. What is the difference between Method Overloading and Method Overriding in C++?
34. What is the difference between a Copy Constructor and an Overloaded Assignment Operator?
35. Name the Operators that cannot be Overloaded.
36. Function can be overloaded based on the parameter which is a value or a reference. Explain if the statement is true.
37. What are the benefits of Operator Overloading?
38. What is Inheritance?
39. What are the advantages of Inheritance?
40. What are Multiple Inheritances (virtual inheritance)? What are its advantages and disadvantages?
41. Explain the ISA and HASA class relationships. How would you implement each?
42. Does a derived class inherit or doesn't inherit?
43. What is Polymorphism?
44. What are Virtual Functions?
45. Give an example of Run-time Polymorphism/Virtual Functions.
46. What do you mean by Pure Virtual Functions?
47. What are Virtual Constructors/Destructors?
48. What is a friend function?
49. What is a friend class?
50. What is a template?

Semester-4:

Paper code: 401

Data communication and Computer networks:

Short Questions:

1. What is broadcasting in network?
2. What is byte staffing?
3. Define routing algorithm.
4. What is marshalling?
5. Define hyper links.
6. Define the term servers.
7. Write shortly about stop- and- wait?
8. What is virtual circuit?
9. What is port?
10. Write the uses of resolver.
11. What are the two types of transmission technology?
12. State the significance of Piggybacking.
13. What are the classification of routing algorithms?
14. Define datagram.
15. Write the five basic functions of email systems.
16. Give examples for guided transmission media.
17. List out the specific functions of data link layer.
18. Define a routing algorithm?
19. State the purpose of UDP.
20. Expand W3C.
21. What is meant by Data communication and explain its characteristics.
22. What are the components of data communication?
23. Explain different data flow directions.
24. What is network and explain characteristics of networks?
25. Write about different types of connections.
26. Explain different types of topologies.
27. Explain different types of networks.
28. Write about protocol and standards.
29. Explain different layers in OSI model.
30. Explain the layers of TCP/IP model
31. Write about peer- to- peer processing.
32. What is fundamentals of data and singles.
33. Write about digital signals.
34. Write about Composite Signals.
35. Write different methods for digital signal transmission.
36. Write about Transmission Impairments.
37. Different Criteria for the performance of networks.
38. Write about line coding and its characteristics.
39. Write about different Block coding techniques.
40. Write about different scrambling techniques.
41. Explain analog to digital conversion techniques.
42. Write about different transmission modes.
43. Explain different digital to analog conversion techniques.
44. Explain analog to analog conversion techniques.
45. What is Multiplexing and explain different types of multiplexing?
46. Write about frequency division multiplexing.
47. Write about wavelength division Multiplexing.
48. What are the different spread spectrum techniques?
49. Write about Guided medium.
50. Write about un-guided medium.

Long Questions:

1. Discuss about network hardware.
2. Explain the protocol hierarchies.
3. Give a note on error detecting codes.
4. Write short notes on sliding window protocols.
5. Describe the implementation of connection-oriented service.
6. Compare and contrast Virtual-circuits with data gram networks.
7. Write a brief note on Multiplexing.
8. Summarize the operations of RPC
9. List out and explain generic top level domains.
10. Explain E-mail architecture and its services.
11. Write down the uses of computer networks.
12. Explain the structure of the telephone network system.
13. Elaborate on routing algorithms.
14. Give a detailed note on UDP.
15. Explain the web architecture.
16. Explain Metropolitan Area Networks.
17. Differentiate between connection-oriented and connectionless services
18. Write short notes on error control and flow control.
19. Describe the working concepts of simplex protocol for a noisy channel
20. Explain the broadcast routing with an example.
21. Explain the working principles of multiplexing with examples.
22. Write short notes on crash recovery.
23. Briefly explain the domain name system(DNS)
24. How to writing a web page in HTML? Explain.
25. Explain the guided transmission media with neat diagrams.
26. Briefly explain the sliding window Protocols
27. Describe the network layer design issues with suitable examples
28. Discuss the transport layer service.
29. Explain the working functionalities of electronic mail system.
30. Write a shot note on wide area networks.
31. Explain about protocol hierarchies.
32. Explain service provided to the network layer.
33. Explain the details of store-and-forward packet switching.
34. Write shortly about connectionless services.
35. What is multiplexing ? Explain.
36. Explain about Remote procedure call.
37. Write short notes on uniform resources locators.
38. Discuss about Name servers.
39. Explain the uses of computer networks in brief.
40. Write in detail about framing.
41. Explain the following routing algorithms: a) Optimality principle b) Shortest path routing
42. Write elaborately on connection establishment in transport protocols.
43. Explain in detail, the Hyper Text Transfer protocol.
44. Discuss the design issues for the layers in computer networks.
45. Discuss the critique of the OSI model and protocols.
46. Explain the design issues of data link protocols.
47. Explain the various congestion control algorithms.
48. Discuss about the implementation of connectionless and connection oriented services in network layer.
49. Explain the transport services primitives for a simple transport services.
50. Discuss about the UDP in internet transport protocol.

Paper code: 402

JAVA Programming:

Short Questions:

1. What is object oriented programming?
2. Give the syntax of if-else.
3. Give the general form of the package statement.
4. What is a File?
5. Mention the syntax of draw line.
6. Define Identifier.
7. What is the purpose of instance variable?
8. Mention the basic form of an exception block.
9. Define Dictionary.
10. What is the use of drawstring method?
11. What is a variable?
12. State the new operator.
13. Write the general form of an interface.
14. Define: Hash table.
15. Write the syntax of draw line method.
16. What is string constant?
17. Define constructor.
18. What is an interface?
19. What is a stream?
20. What is the use of font class?
21. List out the any four reserved keywords.
22. Write the general form of method call.
23. Define the term "Package".
24. What is a directory?
25. What is an applet?
26. Explain JDK, JRE and JVM?
27. Explain public static void main(String args[]) in JAVA.
28. Why java is platform independent?
29. Why java is not 100% object-oriented?
30. What are wrapper classes in java?
31. What are constructors in java?
32. What is singleton class in java and how can we make a class singleton?
33. What is the difference between equals() and == in java?
34. What are the differences between Heap and stack memory in java?
35. What is a package in java? List down various advantages of packages?
36. Why pointers are not used in java?
37. What is JIT compiler in java?
38. What are access modifiers in java?
39. Define a java class.
40. What is an object in java and how is it created?
41. What is object oriented programming?
42. What are the main concepts of OOPs in java?
43. What is the difference between a local variable and an instance variable?
44. Difference between the constructors and methods in java?
45. What is final keyword in java?
46. What is the difference between break and continue statements?
47. What is an infinite loop in java? Explain with an example.
48. What is the difference between this() and super() in java?
49. What is java String Pool?
50. What is constructor chaining in java?

Long Questions

1. Define Separators and explain their use.
2. Write short notes on multidimensional arrays.
3. Explain the general form of a class definition.
4. Describe about the constructors.
5. Explain about concatenation of strings.
6. Write short note on deadlock.
7. Discuss about the system class.
8. Explain the file input stream class.
9. Describe the html applet tags.
10. Write a short note on simple image loader.
11. List and explain the fundamental mechanism of object oriented programming.
12. Elucidate the switch statement.
13. Describe the thread API summary.
14. Explain in detail about the dictionary class.
15. Describe the image observer.
16. What is token? Explain the various types of token supported by java
17. Write short notes on java operators.
18. Write a java program to explain single inheritance.
19. Discuss about the Abstract class.
20. Describe the features of interface with example.
21. Explain the method of creating and using threads.
22. Write short notes on Input statement with example.
23. Discuss about the system class
24. Explain about the Draw Arc.
25. Write shortly on simple image loader.
26. Explain in detail the object oriented programming.
27. Explain the various looping statement in java with suitable examples.
28. Discuss about the exception handling fundamentals.
29. What are input and output streams? Explain with examples?
30. Describe the simple graphics methods in details.
31. What is polymorphism? Explain with an example.
32. List and explain the simple Data Types.
33. Explain syntax of if-else statements
34. Describe about the method overloading.
35. Elucidate package Statements.
36. Explain the nested try statement.
37. Discuss on string Tokenizer.
38. Describe the file Directory.
39. Explain the order of applet initialization.
40. Write short notes on simple image loader.
41. What is literals ? Explain the types of literals.
42. Illustrate the following looping statements. a) do-while b) for.
43. Describe the Thread Model Priorities.
44. List and Explain any two file streams
45. Explain in detail about the font Manipulations
46. Explain the array and multidimensional array in java.
47. Explain the looping Statements in java.
48. Discuss the Exception handling mechanism in detail.
49. Explain the string tokenizer and runtime in detail.
50. Explain imaging and image observer.

Paper code: 403

Software Engineering:

Short Questions:

1. What is Software Engineering?
2. What is the need to learn Software Engineering Concepts?
3. What is SDLC?
4. What are the different types of models available in SDLC?
5. Explain the role of a software project manager?
6. What is a software Project Scope?
7. What is software project Estimation?
8. Explain Functional Points?
9. What is a Baseline?
10. What is software configuration management?
11. What is change control?
12. Mention few project management tools?
13. What is a software requirement?
14. Explain the feasibility study?
15. What are functional and non-functional requirements?
16. What are software metrics?
17. What is Modularization?
18. Explain Concurrency and how is it achieved during the software product delivery?
19. What is cohesion?
20. What is coupling?
21. Mention a few software analysis & design tools?
22. What is DFD level 0?
23. What is Data Dictionary?
24. What is black box testing and white box testing?
25. What are the various types of software maintenance?
26. Explain CASE tools?
27. What are the important categories of software?
28. What is the main difference between a computer program and computer software?
29. What is software re-engineering?
30. Describe the software development process in brief:
31. What are SDLC models available?
32. What is verification and validation?
33. In software development process what is the meaning of debugging?
34. How can you make sure that your code is both safe and fast?
35. Name two tools which are used for keeping track of software requirements?
36. What is the main difference between a stubs, a mock?
37. What language do you like to write programming algorithms?
38. What is computer software?
39. According to you which SDLC model is the best?
40. Who is software project manager? What is his role?
41. What is mean by software scope?
42. How to find the size of a software product?
43. What are function points?
44. What are software project estimation techniques available?
45. What is Software configuration management?
46. How can you measure project execution?
47. Tell me about some project management tools.
48. What is the major difference between structured English and Pseudo Code?
49. What is structured design?
50. What is functional programming?

Long Questions:

1. What is Quality Assurance vs. Quality Control?
2. What are CASE tools?
3. Which process model removes defects before software get into trouble?
4. How you can make sure that your written code which can handle various kinds of error situation?
5. Explain the differences between a Thread and a Process?
6. Tell me the difference between an EXE and a DLL?
7. What is strong-typing and weak-typing? Which is preferred? Why?
8. Describe the difference between Interface-oriented, Object-oriented and Aspect-oriented programming.
9. Why using catch (exception) is always a bad idea?
10. What type of data is passed via HTTP Headers?
11. How do you prioritize requirements?
12. Give me differences between object-oriented and component-based design?
13. When do you use polymorphism?
14. What is the difference between stack and queue?
15. What is essential for testing the quality of the code?
16. Do you think that the maintenance of software is expensive?
17. Give me differences between tags and branches?
18. Where is a protected class-level variable available?
19. Is it possible to execute multiple catch blocks for a single try statement?
20. When do you need to declare a class as abstract?
21. When you know programming, what is the need to learn software engineering concepts?
22. Who is software project manager?
23. What does software project manager do?
24. What is project estimation?
25. How can we derive the size of software product?
26. What are function points?
27. What are software project estimation techniques available?
28. Mention some project management tools.
29. What is SRS?
30. What is modularization?
31. What is concurrency and how it is achieved in software?
32. What is the difference between structured English and Pseudo Code?
33. Briefly define top-down and bottom-up design model.
34. Differentiate validation and verification?
35. What are various types of software maintenance?
36. What are the responsibilities of a Software Project Manager?
37. What is Black box testing?
38. What is White box testing?
39. How can you measure Project execution?
40. What are Non-Functional Requirements?
41. What is the difference between Quality Assurance and Quality Control?
42. Explain the Waterfall model in detail.
43. Explain V-Model in detail.
44. What are the elements to be considered in the System Model Construction?
45. What are the characteristics of the software?
46. Define Framework.
47. What are the challenges in software?
48. What is the limitation of RAD model?
49. What are disadvantage of classic life cycle model?
50. What is the disadvantages of the spiral model?

Paper code: 405

Computer Graphics:

Short Questions:

1. What is persistence?
2. Distinguish between window port & view port.
3. Define clipping.
4. What do you mean by projection?
5. Briefly Explain about colour model.
6. Define function keys.
7. What is transformation?
8. Mention the equation of plane surface.
9. Expand HLS.
10. Define Aspect ratio.
11. Define Rotation
12. What is perspective projection?
13. What are the functions of depth sorting method?
14. Define chromaticity.
15. What is computer graphics?
16. Write the properties of video display devices?
17. Write the essential application of computer graphics.
18. Write the difference between vector and raster graphics?
19. What are the advantages and disadvantages of direct view storage tubes?
20. Differentiate between raster and vector graphics?
21. What are the advantage and disadvantages of DDA Algorithm?
22. Difference between DDA and Bresenham's line drawing algorithm.
23. What is translation?
24. What is Reflection?
25. What is shearing?
26. What is viewing transformation?
27. Define clipping and clip window.
28. Differentiate between parallel Projections from perspective projection.
29. What is the need for space partitioning representation?
30. What are the quadric surfaces?
31. What is critical fusion frequency?
32. Difference between CMY and HSV colour models.
33. What is dithering?
34. List out the various properties that describe the characteristics of light.
35. What is an animation?
36. Define keyframe systems.
37. What is Fractals?
38. What is a turtle graphics program?
39. List the attributes of turtle in graphics.
40. Differentiate Mandelbrot sets and Julia sets.
41. What is the Koch curve?
42. What are Morphing and tweening?
43. What are Peano curves?
44. What is a scripting system?
45. Define refresh/frame buffer.
46. What is the resolution?
47. Define window and viewport.
48. Distinguish between window port and viewport?
49. What are blobby objects?
50. What are the Spline curves?

Long Questions:

1. Explain in detail about the DDA scan conversion algorithm.
2. Discuss about raster CRT.
3. Explain- reflection and shear.
4. Explain about clipping operations.
5. Explain general three dimensional rotation.
6. State notes on curved surface.
7. Explain Depth Buffer Method.
8. Explain Depth sorting method.
9. Write short notes on RCB colour model.
10. What do you mean by shading? Explain.
11. Explain Ellipse generating Algorithm.
12. Explain the text clipping algorithm.
13. Give detailed notes on polygon surface.
14. Explain black face detection method.
15. Discuss about HSV colour model.
16. Write short notes mouse.
17. Discuss about simple CRT monitor.
18. Explain the text Clipping algorithm.
19. Discuss about 3D scaling.
20. Write short notes on Back face detection.
21. Explain area subdivision method.
22. State the properties of light.
23. Discuss about HSV colour model.
24. Discuss about the Breseham's Line Drawing Algorithm.
25. Write detail notes on 2D Transformation.
26. Explain about curved surface and curve design.
27. Write detail notes on Depth-sorting method.
28. Discuss about the RCB Colour model.
29. Write short notes on Raster scan display.
30. Sketch about the DDA algorithm
31. Discuss about shear in two dimensional transformation.
32. Explain the cohen-sutherland line clipping procedure.
33. Briefly write about the parallel ad perspective projection display methods.
34. Write in brief about the scan line method.
35. Elucidate the concept of area subdivision method.
36. Illustrate the properties of light.
37. Describe the CMY colour Model.
38. Elaborately write various input devices.
39. 1) Briefly write the interactive picture construction techniques.
    2) Weiler- Atherton polygon clipping.
40. Illustrate the methods for geometric transformation in three dimensional
41. Explain in detail about the Depth buffer method.
42. Discuss in about various colour models
43. What Is Scan Conversion?
44. Write The Properties Of Video Display Devices?
45. What Is Rasterization?
46. Name Any Four Input Devices?
47. Write The Two Techniques For Producing Colour Displays With A Crt?
48. What Is Vertical Retrace Of The Electron Beam?
49. Short Notes On Video Controller?
50. Differentiate Plasma Panel Display And Thin Film Electroluminescent Display?

Semester-5:

Paper code: 501

Internet and web technology:

Short Questions:

1. Define internet
2. What is the use of ip addresses and ports?
3. Mention the different internet address class and it's range.
4. Define firewall
5. Define proxy servers
6. What is the use of http protocol?
7. What is the use of mime?(multipurpose internet mail extension)
8. Define url & urn
9. Explain about urn
10. What is meant by relative url?
11. Explain about sgml – standard generalized markup language
12. Explain about xml – extensible markup language
13. List the steps functions of http protocol.
14. What is domain & mention different types of domains?
15. Write the format of html program
16. Mention some text formatting tags
17. Explain about list tag
18. Explain the attributes of table tag with an example
19. What do you mean by column spanning and row spanning?
20. Mention the different types of links
21. Explain image maps with its syntax
22. Explain about html form tag with its attributes.
23. Mention the various form elements
24. What is the use of frames in html give the syntax of frames
25. What is the difference between node and host?
26. Define protocol.
27. Define port
28. What do you mean by well-known ports?
29. What is meant by name resolution?
30. Define uri, url, urn
31. What are the components of http url?
32. Define url encoding
33. What are the issues of next generation ip?
34. List the goals of sgml.
35. What is the role of server?
36. What are the necessities of using html forms?
37. What are the sequences of steps for each http request from a client to the server?
38. List the predefined mime content types.
39. Define html.
40. What is meant by loop back address?
41. Explain about http connection
42. What do mean by search engine?
43. How do search engine work?
44. Discuss about the client/server strategies in internet.
45. Explain about <table> &<frame> tags in details.
46. Explain about internet servers
47. Explain the elements of www
48. Explain html forms in detail along with form elements, attributes & methods.
49. What are the ways by which a server and a browser do communicate?
50. How do you change the colour of background or text in html?

Long Questions:

1. Discuss the various HTML tags in detail
2. Write short notes on the following i. IMG tag ii. TABLE tag iii. FRAME tag
3. Write an HTML document to provide a form that collect name and telephone numbers.
4. List any four events associated with DHTML and explain each one with an example
5. Write the XHTML mark-up to create a frame with a table of contents on the left side of the window and have each entry in the table of contents use internal linking to scroll down the document frame to the appropriate subsection.
6. What are HTML tags? List the commonly used HTML commands
7. Design a web page that allows the user to choose from a series of images and to view the image in colour and grayscale.
8. How to create user interactive web pages using form objects and form elements?
9. What is HTML?List the goals of SGML. explain the various html tags to develop the web pages.
10. What are the necessities of using HTML forms? What is the use of HTML Forms? Create a HTML Form page for Railway Registration Form.
11. Mention the advantages of java/java script
12. What are style sheets?
13. List down the ways of including style information in a document.
14. Define cascading.
15. What are the style precedence rules when using multiple approaches?
16. Give the syntax to specify a characteristic in linked style sheet
17. List down font characteristics permitted in style sheets
18. Write a note on content positioning characteristic \"visibility\"
19. Define scriptlets
20. What does dhtml refer?
21. What does data binding mean?
22. What is meant by plug-in?
23. Mention the types of scripting languages
24. Server side scripting
25. Client side scripting
26. List the advantages of java script
27. What is dense arrays?
28. List comparision operators & string operators in java
29. List the various dialog boxes in java script
30. Mention the various java script object models .
31. How scripting language is differs from html.
32. Define function in java script
33. Define css – cascading style sheet
34. Define casding style sheets (css)
35. Mention the types of style sheets
36. List the difference between style sheets
37. List the properties of style tag
38. How to introduce style in html program?
39. List down the ways of including style information in a document.
40. What are the style precedence rules when using multiple approaches?
41. Give the syntax to specify a characteristic in linked style sheet.
42. List down font characteristics permitted in style sheets
43. Explain the document object model architecture
44. Explain the various event handlers in java script. give an example.
45. Write a java script program to develop the arithmetic calculator
46. Write a java script program to perform the validation process in an application programs
47. Write short notes on scripting languages.
48. What are the various java script objects? Explain each with an example.
49. How to validate the check box and check box group?
50. Explain the various CSS properties

Paper code: 503

Fundamentals of computer algorithm:

Short Questions:

1. Why is the need of studying algorithms?
2. What is an algorithm?
3. Give the diagram representation of Notion of algorithm
4. What is the formula used in Euclid's algorithm for finding the greatest common divisor of two numbers?
5. What are the three different algorithms used to find the gcd of two numbers?
6. What are the fundamental steps involved in algorithmic problem solving?
7. What is an algorithm design technique?
8. What is pseudocode?
9. What are the types of algorithm efficiencies?
10. Mention some of the important problem types?
11. What are the classical geometric problems?
12. What are the steps involved in the analysis framework?
13. What is the basic operation of an algorithm and how is it identified?
14. What is the running time of a program implementing the algorithm?
15. What are exponential growth functions?
16. What is worst-case efficiency?
17. What is best-case efficiency?
18. What is average case efficiency?
19. What is amortized efficiency?
20. Define O-notation?
21. Define Ω-notation?
22. Define θ-notation
23. Mention the useful property, which can be applied to the asymptotic notations and its use?
24. What are the basic asymptotic efficiency classes?
25. What is algorithm visualization?
26. What are the two variations of algorithm visualization?
27. What is order of growth?
28. Define the complexity of an algorithm. What is meant by time space trade-off?
29. How the Algorithms play important role in Data Structure.
30. Explain the complexity and the Asymptotic Notation of Algorithms?
31. What do you understand by best, worst and average case analysis of an algorithim?
32. Write an algorithm for transforming infix expression into postfix expression.
33. Write Algorithms for conversion of infix expression into postfix conversion.
34. What are the notations used in Evaluation of Arithmetic Expressions using prefix and postfix forms?
35. Write an algorithm for preorder traversal in binary tree.
36. Write an algorithm for find the location of a given item in BST
37. Write the Prim's Algorithm for minimum Spanning tree.
38. Write the Krushkal's Algorithm for minimum Spanning tree.
39. Explain the shortest path algorithms.
40. Explain the Warshall's Algorithm.
41. Explain the Adjacency matrix with example.
42. Explain the Adjacency list with example.
43. Explain single source path problem with example.
44. Explain multi source path problem.
45. What do you mean by graph? Describe the representation of graph in memory.
46. Explain the Bubble Sort with algorithms.
47. Explain the Quick Sort with algorithms.
48. Explain the Insertion Sort with algorithms.
49. Explain Selection Sort with algorithms
50. Explain the Radix sort with algorithms

Long Questions:

1. Explain about algorithm with suitable example (Notion of algorithm).
2. Write short note on Fundamentals of Algorithmic Problem Solving
3. Discuss important problem types that you face during Algorithm Analysis.
4. Discuss Fundamentals of the analysis of algorithm efficiency elaborately.
5. Explain Asymptotic Notations
6. List out the Steps in Mathematical Analysis of non recursive Algorithms.
7. List out the Steps in Mathematical Analysis of Recursive Algorithms
8. Explain in detail about linear search
9. Explain in detail about Tower of Hanoi.
10. Explain Time and Space Complexity of Algorithm.
11. List out the Applications of Graph.
12. Write notes on Asymptotic Notations of Algorithm
13. Write notes on Shortest path Algorithm.
14. What is Merge sort? Explain with example
15. Explain with example of Selection Sort
16. Describe about the control structures used in algorithm
17. Describe about the complexity of algorithms
18. Explain about algorithmic notations
19. Explain the shortest path algorithm with an example
20. What is recurrence for worst case of QuickSort and what is the time complexity in Worst case?
21. What is time complexity of fun()?
22. What is BFS?
23. What is DFS?
24. What is shortest path from source to all vertices
25. What is shortest path ?
26. What is minimum spanning tree?
27. What is bridges in a graph?
28. What is Longest path?
29. What is 0 1 knaspsack problem?
30. How to find minimum depth of a binary tree?
31. What is bottom view binary tree?
32. What are divide and conquer algorithms?
33. How do insertion sort,heapsort ,quicksort,and merge sort?
34. What are the advantage of insertion sort?
35. What is a hash table and what is the average case and worest case time for each of its operations?
36. What are red-black tree?
37. What are the Dijkstra and prime algorithm?
38. What is the Bellman ford algorithm?
39. How do you find the largest and smallest number in an unsorted integer array?
40. How do you find all pairs of an integer array whose sum is equal to a given number?
41. How do you find duplicate numbers in an array if it contains multiple duplicates?
42. How are duplicates removed from a given array in Java?
43. How is an integer array sorted in place using the quicksort algorithm?
44. How do you remove duplicates from an array in place?
45. How do you reverse an array in place in Java?
46. How are duplicates removed from an array without using any library?
47. How do you check if a given linked list contains a cycle? How do you find the starting node of the cycle?
48. How do you reverse a linked list?
49. How do you reverse a singly linked list without recursion?
50. How are duplicate nodes removed in an unsorted linked list?

Semester-6:

Paper code: 601

Theory of computation:

Short Questions:

1. In the given relation determine the properties(reflexivity, symmetry, transitivity), which ones the relation has: R = {(1,1),(2,2),(3,3),(1,2)} and R = Ø
2. Show that for any language L, L* = (L*)* = (L+)* = (L*)+
3. Give the definition of "Transitive Closure of a Relation" using induction.
4. Define regular language and regular expressions.
5. Find regular expression for the following: Language of all string that do not end with
6. Describe the language corresponding to following: (1+01)*(0+01)*
7. Find context free grammar generating following language {aibjck | i = j or i = k}
8. Show that CFG S a|Sa|bSS|SSb|SbS is ambiguous
9. Use the pumping lemma to show that following language is not regular: L = {xy|x,y ϵ {0,1}* and y is either x or xr}
10. Find context free grammar generating following language {aibjck | i = j or i = k}
11. Show that CFG S a|Sa|bSS|SSb|SbS is ambiguous
12. Write TM accepting Palindrome
13. Write TM accepting {ss | s ϵ {a,b}*}
14. For the language L = { xcx r / x Є {a,b}* } design a PDA(Push Down Automata) and trace it for string "bacab "
15. Prove that √2 (square root of 2) is Irrational by method of Contradiction
16. Define one-to-one, onto and bijection function. Check whether the function f: R ◊R+, f(x) = x 2 is "one to one" or "onto"
17. Write short notes on the following: (i) The Primitive Recursive Functions. (ii) The Sets P, NP, PSpace and NPSpace
18. Write short notes on the following: (i)Top Down Parsing And Bottom Up Parsing. (ii)Universal Turing Machine.
19. Write definition of finite automata and draw FA for the strings: (i)The string in {0,1}* ending in 10 or 11. (ii)The string corresponding to Regular expression {11} * {00} *
20. Convert following CFG to equivalent Chomsky Normal Form(CNF). S ◊AACD | ACD | AAC | CD | AC | C A ◊aAb | ab C ◊aC | a D ◊aDa | bDb | aa | bb Q.18 Design a CFG for the following language. L = { 0 i 1 j 0 k / j > i + k }
21. Define Function and Relation. Explain each type of relation with an example.
22. Write Regular Expressions for the following languages of all strings in {0,1}* (i) Strings that contains odd number of 0's (zeroes). (ii) Strings that begin or end with 00 or 11.
23. Given the CFG G, find a CFG G' in Chomsky Normal form generating L(G) – { Λ} S ◊AaA | CA | BaB A ◊aaBa | CDA | aa | DC B ◊bB | bAB | bb | aS C ◊Ca | bC | D D ◊bD | Λ
24. Define PDA and design PDA for L = { x ∈ { a, b}* | na(x) > nb(x) }
25. Explain Derivation Tree, Expression Tree and Ambiguity with Example
26. Define CFG and Design a CFG for the following language. L = { 0i 1j 0k / j > i + k }
27. Explain Universal TM and Church Turing Thesis
28. Differentiate the NP Hard and NP Complete Problems
29. Draw an DFA that recognize the language of all strings of 0's and 1's of length at least 1 that, if they were interpreted as binary representation of integers, would represent evenly divisible by 3. Your DFA should accept the string 0 but no other strings with leading 0's.
30. Find CFG for the following languages. 1. L = { ai bj ak | j > i + k } 2. L = { ai bj ck | i = j or j = k }
31. Draw a transition diagram for a Turing machine accepting the following language. { an bn cn | n ≥ 0 }
32. Define Nondeterministic Finite Automata (NFA) and write down recursive definition of δ* for NFA- Λ.
33. Give the recursive definition of PAL of Palindrome over any alphabet Σ Q.33 Write definition of Finite Automata and draw FA for the strings: (i) The string with next to last symbol as 0. (ii) The string with number of 0s odd and number of 1s odd

34. Using Principle of Mathematical Induction, prove that for every n >= 1, 7 + 13 + 19 + . . . + (6n + 1) = n(3n +4) Q.36 Compare FA, NFA and NFA- Λ with illustration
35. Define Turing Machine. Describe its capabilities. Also write short notes on Universal Turing Machine.
36. Explain in Brief: (i) Halting Problem. (ii)Chomsky Normal Form(CNF).
37. Define Pumping Lemma for Regular Languages. Prove that the language L = {an: n is a prime number} is not regular.
38. Give transition table for deterministic PDA recognizing the following language. { ai bj ck | i, j, k ≥ 0 and j = i or j = k }
39. What is a finite automaton?
40. Write Regular Expression for the set of strings over {0.1} that have atleast one.
41. What is a regular expression ?
42. Name any four closure properties of regular languages
43. Construct NFA equivalent to the regular expression (0+1)01
44. Prove or disprove that (r+s)* = r* + s*
45. Let G be the grammar with S→aB|bA A→a|aS|bAA B→b|bS|aBB
46. What do you mean by null production and unit production? Give an example.
47. Construct a CFG for set of strings that contain equal number of a's and b's over Σ = {a,b}.
48. What is unambiguity?
49. What is meant by Context Free Grammar (CFG)?
50. Define Regular Expression

Long Questions:

1. Define (a) Finite Automata (FA) (b) Transition Diagram
2. State the Principle of induction.
3. What is proof by contradiction?
4. Define ε-closure(q) with an example.
5. Differentiate between proof by contradiction and proof by contrapositive
6. Construct a DFA for the language over {0, 1}* such that it contains "000" as a substring
7. What is structural induction?
8. State the difference between NFA and DFA.
9. Construct deterministic finite automata to recognize odd number of 1's and even number of 0's?
10. State the relations among regular expression, deterministic finite automata, non deterministic finite automaton and finite automaton with epsilon transition.
11. What is inductive proof?
12. Find the set of strings accepted by the finite automata.
13. What is meant by DFA?
14. Define the term Epsilon transition
15. Draw the transition diagram for an identifier
16. What is non deterministic finite automata?
17. Define Deductive Proof
18. Design DFA to accept strings over Σ = (0,1) with two consecutive 0's
19. Draw a Non-deterministic finite automata to accept strings containing the substring 0101.
20. State the pumping lemma for regular languages
21. Define the languages described by DFA and NFA.
22. Define extended transition function for a DFA.
23. Give a regular expression for the set of all strings having odd number of 1's
24. Give the regular expression for the set of all strings ending in 00.
25. When two states are equivalent and distinguishable?
26. What are the applications of regular expression?
27. State Arden's theorem
28. Explain the different forms of proof with examples
29. Prove that, if L is accepted by an NFA with εtransitions, then L is accepted by an NFA without ε-transitions
30. Prove that if n is a positive integer such that n mod 4 is 2 or 3 then n is not a perfect square.
31. Construct a DFA that accepts the following (i) L={ x € {a,b}:|x|a = odd and |x|b = even}. (ii) Binary strings such that the third symbol from the right end is 1.
32. Prove by induction on n that ∑= = + n i i n n 0 (1) / 2
33. Construct an NFA accepting binary strings with two consecutive 0's.
34. Show that a connected graph G with n vertices and n-1 edges (n>2) has at least one leaf.

35. Prove that there exists a DFA for every ε-NFA.
36. Distinguish NFA and DFA with examples.
37. Give regular expressions for the following L1=set of all strings of 0 and 1 ending in 00 L2=set of all strings of 0 and 1 beginning with 0 and ending with 1.
38. Differentiate regular expression and regular language
39. Construct NFA for the regular expression a*b*.
40. Is regular set is closed under complementation ?Justify.
41. Prove that the complement of a regular language is also regular.
42. Prove by pumping lemma, that the language 0n1 n is not regular.
43. Construct a DFA for the following: (a) All strings that contain exactly 4 zeros. (b) All strings that don't contain the substring 110.
44. Is the set of strings over the alphabet {0} of the form 0n where n is not a prime is regular? Prove or disprove
45. Let L = {w:w ε {0,1}* w does not contain 00 and is not empty}. Construct a regular expression that generates L
46. Prove or disprove that the regular languages are closed under concatenation and complement.
47. Give the regular expression for set of all strings ending in 00.
48. State pumping lemma for regular set.
49. State Chomsky normal form theorem
50. Prove that there exists an NFA with ε-transitions that accepts the regular expression γ.

Paper code: 602

Distributing Computing:

Short Questions:

1. Define distributed Computing
2. List the characteristics of distributed Computing
3. Mention the examples of distributed Computing
4. What is mobile and ubiquitous computing?
5. Mention the challenges in distributed computing.
6. What are the Advantages of Distributed computing?
7. What are the Disadvantages of Distributed computing?
8. Write the difference between mobile and ubiquitous computing.
9. Write types of pipelining.
10. What is pipelining
11. What is parallel processing?
12. Define pipeline
13. Define SIMD array
14. Define parallel processing
15. Differentiate between temporal and data parallelism
16. Write about use of hierarchical memory.
17. Define time sharing.
18. Write principle of designing pipeline processors
19. Define processor.
20. Write parallel algorithm for array processors.
21. How We Provide A Security?
22. What is functional structures?
23. What is loosely coupled multiprocessor and tightly coupled multiprocessor.
24. What are the significance of distributed computing?
25. Why we do you need distributed computing?
26. What is meant by location aware computing?
27. What are the two type of resource sharing?
28. List the advantages of Distributed System over Centralized System
29. List the advantages of Distributed System over Personal Computer.
30. List the Disadvantages of Distributed Systems.
31. What is Time shared of common buses?

32. List three properties of distributed system
33. What is a Single-point-of-failure and how can distribution help here?
34. What kind of reliable connection is provided by a tcp/ip based socket? Is this reliability enough for distributed calls or when does it break down?
35. What is the advantage if your server side processing uses threads instead of a single process?
36. Explain the concept of an object reference in a distributed system. Why do remote objects ned one and who creates it?

37. Remote objects built with Java RMI are usually registered in a so called "registry". Why?
38. How does a server know that one of his remote objects provided by him is no longer used by clients and can be collected? How does Java RMI handle this problem and what alternatives are there?
39. What services are frequently provided by distributed systems middleware and what is their function?
40. What is the difference between functional and non-functional requirements? Which one is usually overlooked and causes the biggest problems later?
41. Why do you need a locking service in distributed systems? What kind of problems does a locking service prevent?
42. What is a distributed deadlock and why are they hard to detect?
43. List three of the eight fallacies of distributed computing? Why are they fallacies?
44. Explain distributed 2-phase commit. Why is it called a voting algorithm?
45. What is the core problem of passwords and why are they even worse in distributed systems
46. What is end-to-end security in distributed systems? Is this a problem with e.g. e-mail?
47. List some features of components. If you have a software company - why would building components be an interesting idea
48. List services a distributed management package needs to provide
49. Name two mechanisms that can be used to ensure performance in distributed systems
50. List some architectures that you need to define for distributed systems

Long Questions:

1. What are the significance of distributed computing?
2. Why we do you need distributed computing?
3. What is meant by location aware computing?
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5. List the advantages of Distributed System over Centralized System
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7. List the Disadvantages of Distributed Systems.
8. Explain the process of pipelining.
9. What is SIMD array.
10. Explain the multiprocessor.
11. Define pipeline
12. Define SIMD array
13. Define parallel processing
14. Differentiate between temporal and data parallelism
15. Write about use of hierarchical memory.
16. Define time sharing.
17. Write principle of designing pipeline processors
18. Define processor.
19. Write parallel algorithm for array processors.
20. How We Provide A Security?
21. What is loosely coupled multiprocessor and tightly coupled multiprocessor
22. What is functional structures? Explain in brief.
23. Define parallel processing Explain in brief.
24. Differentiate between temporal and data parallelism Explain in brief.
25. Write parallel algorithm for array processors. Explain in brief.
26. Write types of parallel processing

27. Define pipeline. What is the types of pipelining
28. Time shared of common buses explain in brief.
29. Write about use of hierarchical memory explain in brief.
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42. What is a Single-point-of-failure and how can distribution help here? In brief
43. What kind of reliable connection is provided by a tcp/ip based socket? Is this reliability enough for distributed calls or when does it break down? Explain in brief
44. What is pipelining ? explain in brief with its types
45. Explain parallel processor and its types with example
46. Difference between loosely coupled and tightly coupled maximum 10 points.
47. Write about the types of multiprocessor.
48. What is multiprocessor explain in brief
49. What is SIMD array explain in brief.
50. What is parallel algorithm explain in brief.