MANGALORE UNIVERSITY
COMPUTER SCIENCE TEACHERS' ASSOCIAATION (MUCSTA)

MANGALORE UNIVERSITY
Choice Based Credit System (CBCS)

Bachelor of Computer Applications (BCA)
2019-2020 Onwards

III Semester BCA

Question Bank

BCAC231- Operating System and Linux

BCAC 232 – Data Structures

BCAC233 – Visual Basic .NET Programming

BCACE 236 - Hardware and PC Maintenance

BCACE 237 - Desktop Publishing

BCAC231
Operating System and Linux

UNIT-I

Questions carrying 2 marks.
1. What is an OS?
2. Mention the different types of OS.
3. Explain simple batch system.
4. What are different types of real time system?
5. What is hard real time system?
6. What is soft real time system?
7. What is the difference between a program and a process?
8. Mention activities in connection with process management are taken care of by the OS
9. Mention activities in connection with memory management are taken care of by the OS
10. Mention activities in connection with file management are taken care of by the OS?
11. Mention activities in connection with I/O management are taken care of by the OS?
12. Write a note on protection.
13. What is networking?
14. What is
    i. program execution
    ii. I/O Operation
    iii. File system manipulation
    iv. Communication
    v. Error detection
    vi. Resource allocation
    vii. Accounting
    viii. Protection

15. What is CPU burst and I/O burst?
16. What is non-preemptive scheduling?
17. What are the tasks of the dispatcher?
18. List any four scheduling criteria.

Long answer Questions (4,5,6,7 Marks)
1. Explain mutliprogrammed batched system.
2. Write a note on time sharing system.
3. Explain real time system.
4. Explain the components of OS.
5. Write a note on process management.
6. Write a note on memory management.
7. Write a note on file management
8. Write a note on I/O system management.
9. Write a note on secondary storage management.
10. Explain the command interpreter system
11. Explain any four services of the OS to the user.
12. Explain the main parts of a process?
13. Draw and explain the process state diagram.
14. Write a note on PCB and explain the main parts.
15. What are the two types of scheduling queues? Explain them.

16. Explain medium term scheduler.
17. Explain briefly three types of schedulers.
18. Explain what is context switching.
19. Explain the needs of process cooperation.
20. Explain a thread briefly.
21. Give the advantages of using threads.
22. How can responsiveness be increased by using threads?
23. Explain any two benefits of using threads.
24. Differentiate between kernel level and user level threads.
25. Explain pre-emptive scheduling.
26. Explain 5 scheduling criteria.
27. Explain the FCFS algorithm, with an example.
28. Explain the disadvantages of FCFS scheduling algorithm, with an example.
29. Explain the shortest job first algorithm (2)   with an example.
30. Explain preemptive and non-preemptive SJF scheduling   with an example
31. Explain briefly preemptive and non-preemptive priority scheduling.
32. Explain Round –Robin scheduling.

33.

Process	Burst Time
P_1	24
P_2	3
P_3	3

Suppose that the processes arrive in the order: P_1 , P_2 , P_3 ,Find waiting time and average waiting time using FCFS Scheduling algorithms

34.

Process	Burst Time
P1	6
P2	8
P3	7
P4	3

Find waiting time and average waiting time using SJF Scheduling algorithms

35.

Process	arri *Arrival* Time	Burst Time
P_1	0	8
P_2	1	4
P_3	2	9
P_4	3	5

Find waiting time and average waiting time using SJF primitive Scheduling algorithms

36.

Process	Burst Time
P_1	24
P_2	3
P_3	3

Find waiting time and average waiting time using Round Robin Scheduling algorithms. Time Quantum=4

37.

Process	Burst Time	Priority
P_1	10	3
P_2	1	1
P_3	2	4
P_4	1	5
P_5	5	2

Find waiting time and average waiting time using Priority Scheduling algorithms

Unit 2
Questions carrying 2 marks.

1. Mention the 3 requirements that a solution to a critical section problem should satisfy.
2. Give the general structure of a process with a critical section
3. What is a deadlock? Give an example.
4. Draw an example of a resource allocation graph with a cycle and (i) With deadlock (ii) without deadlock.
5. What is resource allocation state?
6. What are Physical and logical addresses? Explain with an example.
7. What is swapping?
8. What is paging?
9. What is virtual memory? Why is it needed?
10. What is pure demand paging?
11. What is starvation?
12. What is rollback?
13. What is safe state?
14. What is Memory Management Unit(MMU)?
15. Mention 2 types of fragmentation
16. List the difference between page and frame
17. What is lazy swapper?

Long answer Questions (4,5,6,7 Marks)
1. Explain critical section problem
2. Explain 3 requirements of a solution to the critical section problem.
3. What is a deadlock? Give an example.
4. Explain necessary conditions for a deadlock to occur.
5. Explain resource-allocation graph with an example.
6. Draw an example of a resource allocation graph with a cycle and (i) With dead lock (ii) without deadlock.
7. What is (i) Deadlock prevention (ii) Deadlock avoidance (iii) Recover from deadlock.
8. Explain two protocols to avoid hold and wait.
9. Explain two protocols used to avoid 'No preemption' condition of deadlocks?
10. Explain the 2 protocols to prevent circular wait
11. Explain the term 'safe state'.
12. Consider a system with 12 magnetic tape drives and three processes, P0, P1, P2. Let the maximum needs and allocation at a certain time be as follows.

	Max needs	Currently allocated
P0	10	5
P1	4	2
P2	9	2

Find a safe sequence.
13. Consider a system with 12 magnetic tape drives and three processes, P0, P1, P2.. Let the maximum needs and allocation at a certain time be as follows.

	Max needs	Currently allocated
P0	10	5
P1	4	2
P2	9	3

Is there a safe sequence?
14. Write a note on resource allocation graph algorithm.
15. Give examples of resource allocation graphs in safe and unsafe states.
16. Explain the safety algorithm in Banker's algorithm.
(Available, Allocation, Max, Need, Work, Finish should be properly defined and initialized.)
17. Explain the resource request algorithm in Banker's algorithm.
(Request, Allocation, Need should be properly defined.)

18. Write down an algorithm to detect deadlocks, when several instances of a resource type are present in the system.
19. Explain the ways to deal with a deadlock when it is detected.
20. Write a note on process termination to recover form a detected deadlock.
21. Write a note on resource preemption to recover from a detected dead lock.
22. Explain the term swapping.
23. Explain the basic methods of paging.
24. Assume page size is four bytes, and memory available is 8 pages. Suppose that
the logical memory of three pages , and the page table are as given below. Give the corresponding

```
0  a
1  b
2  c
3  d

4  e
5  f
6  g
7  h

8  i
9  j
10 k
11 l
```

```
0 | 3
1 | 4
2 | 8
```

physical addresses.
25. Discuss the different structures of page tables.
26. Explain briefly about segmentation.
27. Write a note on implementation of segmentation.
28. Explain advantages of segmentation.
29. What is demand paging? Explain briefly.
30. What is page-fault? Write down a procedure for handling a page-fault trap.
31. Discuss the hardware requirements for paging.
32. Explain the need of page replacement in a page fault service routine.
33. Write a note on different page fault replacement algorithms.
34. Consider the reference string 7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1. For memory with 3 frames, give the steps in the FIFO page replacement algorithm.
35. Consider the reference string 7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1. For memory with 3 frames, give the steps in the optimal page replacement algorithm.
36. Consider the reference string 7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1. For memory with 3 frames, give the steps in the LRU page replacement algorithm.

Unit 3

Questions carrying 2 marks.
1. Differentiate the terms 'free software' and 'freeware software'.
2. Define the types and versions of LINUX distributions.
3. Give examples for RPM and Deb distributions.
4. Expand the term KDE and GNOME.
5. Define a file name and file name extension.
6. What do you mean by a path name? Give example.
7. Name the different file system types used in LINUX.
8. Write the use of Disk usage analyzer.
9. What is GParted?

10. What are the various types of Linux packages?
11. Write the functions of LINUX package manager.
12. What is the use of synaptic package manager?
13. What is the use of back up files?
14. What is the importance of backed up files?

Long answer Questions (4,5,6,7 Marks)
1. Define and explain the features of LINUX.
2. Write a note on LINUX distributions.
3. Give the difference between RPM based distributions and Deb based distributions with example.
4. Define and explain the components of file manager window.
5. Write a note on files and folders properties.
6. Give the structure of LINUX file system. Explain with example.
7. Write a note on managing files and folders in LINUX.
8. How can we search for files in LINUX? Explain in brief.
9. How can we create files and folders in LINUX?
10. Write a note on powers of an administrator in LINUX OS.
11. How can we write the contents to CD/DVD in LINUX?
12. How can we install LINUX package?
13. Explain the services provided by the internet.
14. Write a note on the following.
    i. Managing drives and media in LINUX OS.
    ii. Creating and editing disk partitions in LINUX OS.
    iii. Monitoring the System in LINUX OS.
    iv. Managing users and groups in LINUX OS.
15. How can we configure computer network in LINUX? Explain with example.
16. Explain Managing user and group in LINUX

Unit 4

Questions carrying 2 marks.
1. Explain the pwd command
2. Give the syntax and explain the mkdir command
3. What is man command?
4. Explain how to get help about a command in Linux.
5. What is the output of
   for t in Mangalore University Mysore University Karnataka University
    do
     echo "Now going to $t "
    done
6. Suppose that a file called "states" contains a list of states. Write a shellscript to read them and produce an output as follows –
    Vist beautiful Karnataka!
    Visit beautiful Kerala!
         …   etc.
7. What are different types of file permissions?
8. List the numeric operators and their meanings in Linux.
9. List the string operators and their meanings in Linux.
10. List the file operators and their meanings in Linux.
11. Explain the logical operators in Linux.
12. What is the use of read statement?
13. Write a note on file names in linux.

14. What is the output of the commands

```
c=`ls -l | grep "^d" | wc -l`
  echo " $c "
```

15. What is the output of the commands

```
c=`ls -l | grep "^-" | wc -l`
echo " $c "
```

Long answer Questions (4,5,6,7 Marks)
1. Explain the ls –l command with an example.
2. Explain briefly different forms of ls command.
3. Explain | command with an example.
4. Write a note on vi editor.
5. Explain with an example how to add a new user in Linux.
6. Explain the su and who am i commands.
7. Give the syntax and explain the cp command.
8. How do you remove files or directories in Linux?
9. Explain the command used to move a directory or a file in Linux.
10. Explain the command to copy a file in Linux.
11. What is the output of the following shell script?

```
for ((a=1; a<= 3; a++))
    do
    echo "Starting loop $a:"
    for ((b = 1; b<= 4; b++))
   do
        echo "----Inside loop: $b "
    done
  done
```

12. Explain how they can be changed using the chmod command.
13. Explain how to create, edit and save a shell program using the vi editor.
14. Write a note on positional parameters.
15. What are the values stored in $#, $?, $0, $* and "$@" ?
16. Write a note on shift command.
17. Explain the use of " " (double quotes) and \ (Back slash) in Linux shell script commands, with an example
18. What is the use of `  ` (back quotes) in Linux?
19. Give the syntax and explain the if statement with an example.
20. Give the syntax and explain while loop with an example.
21. Give the syntax and explain until loop with an example.
22. Write a note on break command, and give an example.
23. Write a note on continue command and give an example.
24. Give the syntax and explain the case statement with an example.
25. Explain how the cut command can be used to extract columns of a file.
26. Explain how user defined variables are used in linux shell programs, with examples.
27. Explain how to write mathematical expressions and assignment statements in linux .
28. Write a note on three types of files in Linux.
29. Write a note on / (root), /home, /bin and /user directories.
30. What are the contents of /user/dec, user/man, user/spool, user/bin directories?

BCAC 232
Data Structures
UNIT-1

2 marks questions:

1) Define i) data items   ii) group items   iii) elementary items   iv) fields   v) records   vi) files   vii) entity   viii) attributes   ix) entity set   x) information   xi) primary key   (Any 2)
2) What do you mean by fixed-length records and variable-length records?
3) Define data structure.
4) Write the classification of data structure.
5) Name the 2 classification of data structure.
6) Define primitive data structure. Give an example.
7) Define non-primitive data structure. Give an example.
8) Write the classification of non-primitive data structure.
9) Differentiate primitive data structure and non-primitive data structure.
10) Define linear data structure. Give an example.
11) Define non-linear data structure. Give an example.
12) Differentiate linear and non-linear data structure.
13) Name any 4 operations performed by data structure.
14) Define traversing and searching.
15) Define sorting and merging.
16) Write any two algorithmic notations with examples.
17) Name any 2 types of control structures used in algorithms.
18) Write a note on sequence logic.
19) Write the structure of single alternative.
20) Write the structure of double alternative.
21) Write the structure of multiple alternatives.
22) Write a note on iteration logic.
23) Define linear array. Write the formula to obtain number of data elements in an array.
24) Consider the linear array LA(1:10). Find the number of elements in an array.
25) Consider the linear array AA(5:50). Find the number of elements in an array.
26) Consider the linear array BB(-5:10). Find the number of elements in an array.
27) Consider the linear array CC(18). Find the number of elements in an array.
28) Define linear array. Give the formula to find the location of a particular element in one dimensional array.
29) Consider the linear array AA(1:10). Suppose Base(AA)=100 and w=4 words per memory cell for AA. Find the address of AA[5].
30) Consider the linear array BB(5:50). Suppose Base(BB)=200 and w=4 words per memory cell for BB. Find the address of BB[15],
31) Consider the linear array CC(5:50). Suppose Base(CC)=300 and w=4 words per memory cell for CC. Find the address of CC[35]
32) Consider the linear array DD(5:50). Suppose Base(DD)=400 and w=4 words per memory cell for DD. Find the address of DD[45].
33) Suppose a 5-element array A contains the values {25, 32, 65, 43, 78}. Find the values of the given arrays AB[2] and AB[4] after the loop.

        Repeat for K = 1 to 4:

Set AB[K + 1] := A[K]
             [End of loop]
34)   Suppose a 5-element array A contains the values {25, 32, 65, 43, 78}. Find the values of the given arrays BB[2] and BB[5] after the loop.
             Repeat for K = 1 to 4:
                   Set BB[K + 1] := A[K]
             [End of loop]
35)   Suppose a 5-element array A contains the values {25, 32, 65, 43, 78}. Find the values of the given arrays CC[4] and CC[2] after the loop.
             Repeat for K = 4 to 1 by -1:
                   Set CC[K + 1] := A[K]
             [End of loop]
36)   What is sparse matrix? Give example.
37)   What is lower-triangular matrix? Give an example.
38)   What is upper-triangular matrix? Give an example.
39)   What is tri-diagonal matrix? Give an example.

Long questions
1)   Write the classification of data structure and briefly explain it.   (6)
2)   List and explain the various operations performed on data structure.   (6)
3)   Write a note on algorithmic notation.   (6)
4)   Explain selection logic in detail.   (6)
5)   Write a note on iteration logic.   (6)
6)   What do you mean by traversing a linear array? Write the algorithm to traverse a linear array.   (5)
7)   Write an algorithm to inserting an element into a linear array.   (4)
8)   Write an algorithm to delete an element from a linear array.   (4)
9)   How do you represent polynomial using arrays? Explain with an example.   (6)
10)   Write a note on sparse matrix.   (5)

UNIT-2
2 marks questions
1)   Define searching. Name 2 types of searching techniques.
2)   What do you mean by successful search and unsuccessful search?
3)   What do you mean by sequential search?
4)   What do you mean by binary search?
5)   Write one advantage and disadvantage of binary search.
6)   What do you mean by sorting? Write any 2 sorting techniques.
7)   What is merging?
8)   What is diminishing increment sort?
9)   What is linked list?
10)   What is free storage list?
11)   What is garbage collection?
12)   What role does the AVAIL list play in a linked list?
13)   How is singly linked list terminated? Give diagram.
14)   What is underflow and overflow with respect to linked list?
15)   Define circularly linked list. Give its diagram.
16)   What is two-way list? Give its diagram. OR What is doubly linked list? Give its diagram.

17) Write the node diagram of two-way list.

18) What is a null pointer? What is its significance?

19) Mention any 2 operations performed on two-way lists.

Long Questions:

1) What is linear search? Write the algorithm for linear search. (6)

2) Explain binary search with an example. (6)

3) Write an algorithm for binary search. (5)

4) Explain bubble sort with an example. (6)

5) Write an algorithm for bubble sort. (5)

6) Trace the following numbers using bubble sort for the following data:
   65, 25, 10 , 80 , 25 , 11 , 45 , 20 (6)

7) Trace the following numbers using bubble sort for the following data:
   32, 51, 27, 85, 66, 23, 13, 57 (6)

8) Explain insertion sort with an example. (6)

9) Write an algorithm for insertion sort. (5)

10) Trace the following list of numbers using insertion sort technique:
    23, 45, 56 22, 10, 27, 33, 48, 39,55, 88, 90 (6)

11) Trace the following list of numbers using insertion sort technique:
    77, 33, 44, 11, 88, 22, 66, 55 (6)

12) Explain selection sort with an example. (6)

13) Write an algorithm for selection sort. (5)

14) Trace the following list of numbers using selection sort technique:
    23, 45, 56 22, 10, 27, 33, 48, 39,55, 88, 90 (6)

15) Trace the following list of numbers using selection sort technique:
    77, 33, 44, 11, 88, 22, 66, 55 (6)

16) What is merging? Write an algorithm for merging 2 sorted arrays. (7)

17) Trace the following list of numbers using shell sort technique:
    25, 45, 56 12, 19, 27, 35, 48, 39,55, 88, 30 (6)

18) Sort the list 13,17,19,10,15,11,16,18,14,12,10,16,11,15,17,13,14,19,18,12 using shell
    sort. (6)

19) Sort the list 20, 12, 65, 8, 10, 16, 43, 35, 23, 88, 2, 56, 41, 27, 67, 56 using shell sort. (6)

20) Trace the following list of numbers using radix sort technique:
    234, 455, 563 122, 100, 276, 333, 482, 399,558, 887, 304 (6)

21) Trace the following list of numbers using radix sort technique:
    348, 143, 361,423, 538, 128, 321, 543,366 (6)

22) Trace the following list of numbers using radix sort technique:
    582, 675, 591, 189, 900, 770 (6)

23) Trace the following list of numbers using radix sort technique:
    329, 457, 657, 839, 436, 720, 355 (6)

24) Write an algorithm for traversing a linked list. (4)

25) Write an algorithm for searching an item in a linked list when the list is unsorted. (4)

26) Write an algorithm to insert an item at the beginning of a linked list. (4)

27) Write an algorithm to insert an item after a given node of a linked list. (4)

28) Write an algorithm to delete a node following a given node of a linked list. (4)

29) Write a note on two-way lists. (4)

UNIT-3

2 marks questions:

1) What is stack? Name the basic operations performed on stack.
2) What is stack? Why stack is called LIFO list?
3) What is LIFO list? Mention any 2 its applications.
4) Mention any two applications of stack.
5) What do you mean by PUSH and POP operation?
6) Expand LIFO and FIFO.
7) What is a queue? Why queue is called FIFO list?
8) How does Stack differ from Queue?
9) Write an algorithm for PUSH operation using arrays.
10) Write an algorithm for POP operation using arrays.
11) Define i) infix notation ii) prefix notation iii) postfix notation. (any 2)
12) What do you mean by infix notation? Give an example.
13) What do you mean by prefix notation? Give an example.
14) What do you mean by postfix notation? Give an example.
15) What do you mean by polish and reverse polish notation?
16) Evaluate ABC*+D- with proper step. Assume A=4, B=6, C=2 , D=-4
17) Evaluate AB+CD*/ with proper step. Assume A=2, B=3, C=5 , D=-5
18) Evaluate ABC*- with proper step. Given A=2, B=1,C=4
19) Convert the given infix expression to prefix form. (any 2)
    a) A * B + (C ^ D / E / F)
    b) a / b * c – d + e / f * (g + h)
    c) (X + Y / Z * W ^ P) – R
    d) (X + Y * Z ^ A / 4) – P
    e) (A + B) * (C – D) / E * F
    f) a * b + (c / d ^ e) - f
    g) (A - B * C ^ D) / (E + F)
    h) (a / b) * (c * f + (a – d) * e)
    i) A + B * (C – D * (E + F))
    j) a * b – c ^ d + e / f
20) Convert the given infix expression to postfix form. (any 2)
    a) A * B + (C ^ D / E / F)
    b) a / b * c – d + e / f * (g + h)
    c) (X + Y / Z * W ^ P) – R
    d) (X + Y * Z ^ A / 4) – P
    e) (A + B) * (C – D) / E * F
    f) a * b + (c / d ^ e) - f
    g) (A - B * C ^ D) / (E + F)
    h) (a / b) * (c * f + (a – d) * e)
    i) A + B * (C – D * (E + F))
    j) a * b – c ^ d + e / f
21) Write an algorithm to find factorial of a number N using recursion.
22) Write an algorithm to generate Fibonacci series using recursion.
23) Define queue. Name the primary queue operations.
24) Differentiate queue and circular queue.
25) What is circular queue?

26) Define dequeue. What are its types?
27) What do you mean by input-restricted deque and output-restricted deque.
28) What is meant by priority queue? What is its use?
29) Write any 2 applications of queues.

Long questions:
1) Write an algorithm for PUSH and POP operations using arrays. (4)
2) Write an algorithm to push an item onto a stack using linked list. (4)
3) Write an algorithm to delete an item of a stack using linked list. (4)
4) Consider the linked list given below and perform the following operations using diagram.
   I) PUSH BBB   ii) POP   iii) POP   iv) PUSH MMM (4)
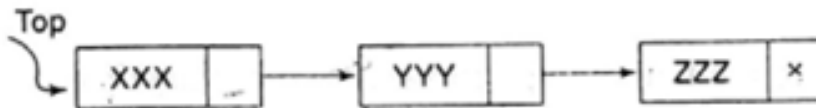
5) Write an algorithm to evaluate postfix expression. (4)
6) Write an algorithm to convert infix to postfix expression. (5)
7) Convert the following infix expression into postfix expression using stack status.
   Q: A + (B * C − (D / E ↑ F) * G) * H
8) Convert the following infix expression into postfix expression using stack status.
   Q: ((A + B) * D) ↑ (E − F)
9) Evaluate the following postfix expression showing the stack status.
   P: 3, 5, +, 6, 4, -, *, 4, 1, -, 2, ↑, +
10) Evaluate the following postfix expression showing the stack status.
    P: 3, 1, +, 2, ↑, 7, 4, -, 2, *, +, 5, -
11) Evaluate the following postfix expression showing the stack status.
    P: 5, 6, 2, +, *, 1, 2, 4, /, −
12) Write an algorithm to insert an element into a queue using arrays. (5)
13) Write an algorithm to delete an element from a queue using arrays. (5)
14) Write an algorithm to insert an element into a queue using linked list. (5)
15) Write an algorithm to delete an element from a queue using linked list. (5)
16) Write a note on i) circular queue. Ii) Deque.
30) Convert the given infix expression to prefix and postfix form. (any 2) (6)
    a) A * B + (C ^ D / E / F)
    b) a / b * c − d + e / f * (g + h)
    c) (X + Y / Z * W ^ P) − R
    d) (X + Y * Z ^ A / 4) − P
    e) (A + B) * (C − D) / E * F
    f) a * b + (c / d ^ e) - f
    g) (A - B * C ^ D) / (E + F)
    h) (a / b) * (c * f + (a − d) * e)
    i) A + B * (C − D * (E + F))
   j) a * b − c ^ d + e / f

UNIT-4

2 marks questions
1) Define binary tree. Give an example.
2) Define the terms with respect to tree. (Any 2) i) parent ii) left child iii) right child iv) siblings

v) descendent vi) ancestor vii) edge viii) path   ix) leaf node x) terminal node   xi) branch
xii) depth of a tree

3) Define complete binary tree. Give an example.
4) What is extended binary tree? Give an example.
5) What do you mean by internal nodes and external nodes?
6) Name the 2 ways of representing trees in memory.
7) If a node N occupies TREE[4], then in which the locations left child and right child are stored?
8) Draw the tree for the expression (A+B)*(C+D)
9) Draw a binary tree to represent the expression (a+b-c)/(e+f)
10) What is a binary search tree? Give an example.
11) Give any two applications of binary tree.
12) What are two methods to implement graphs in memory?
13) Define adjacency matrix.
14) Define path matrix.
15) List various operation performed on graphs.
16) Write an algorithm to find location of the node containing ITEM in graph.


Long Questions:

1) Define the terms with respect to tree. (Any 5) i) parent ii) left child iii) right child
   iv) siblings v) descendent vi) ancestor vii) edge viii) path   ix) leaf node
   x) terminal node xi) branch   xii) depth of a tree   (5)
2) Write a note on i) Complete binary tree   ii) Extended binary tree   (6)
3) With an example, explain linked representation of binary tree.   (5)
4) With an example, explain sequential representation of binary tree.   (5)
5) With an example, explain the 2 methods of tree representation in memory.   (6)
6) What are the 3 standard ways of traversing a tree T with root R. write steps of each
   traversal using recursion.   (6)
7) Write the preorder, inorder and postorder traversal for the given tree.   (6)
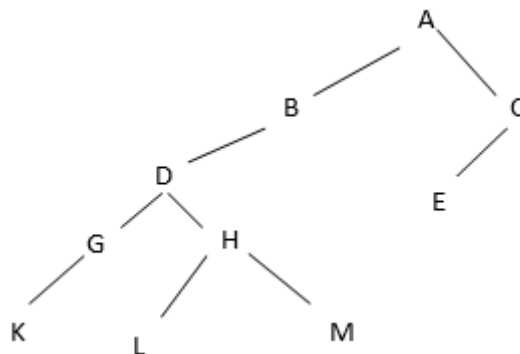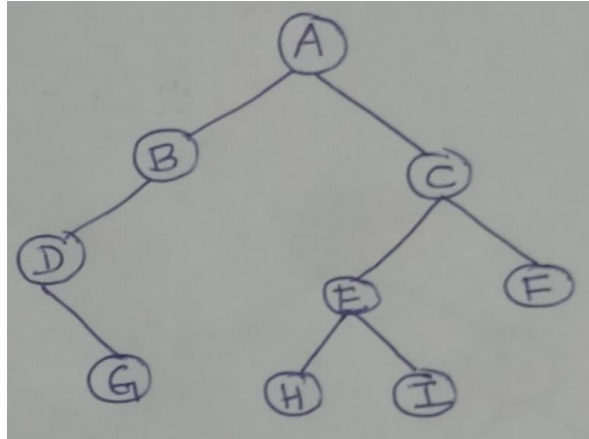

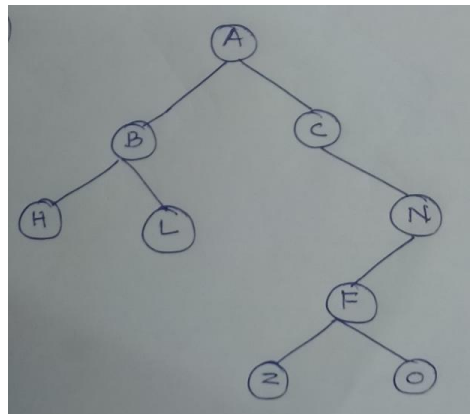8) Write the preorder, inorder and postorder traversal for the given tree.   (6)
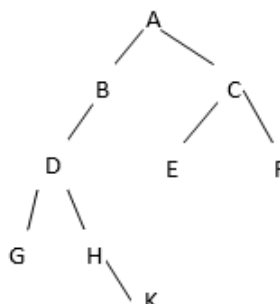
9) Write the preorder, inorder and postorder traversal for the given tree. (6)
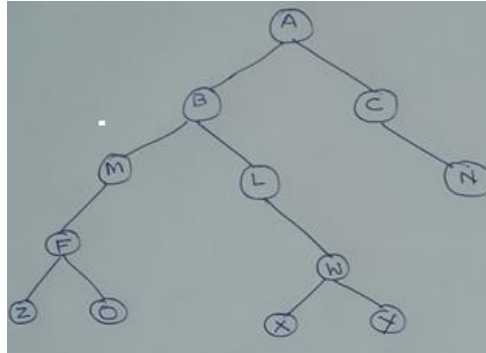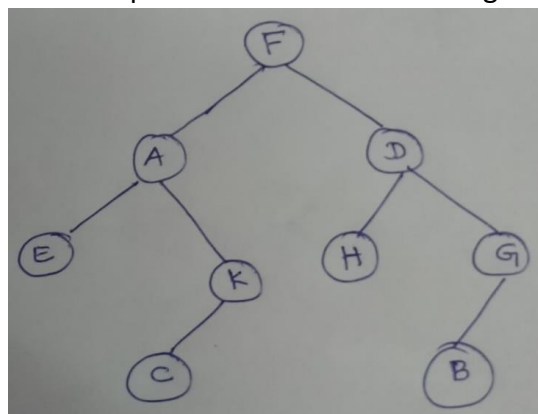
10) Write the preorder, inorder and postorder traversal for the given tree. (6)

11) Write the preorder, inorder and postorder traversal for the given tree. (6)

12) Write the preorder, inorder and postorder traversal for the given tree. (6)

13) Draw the binary tree for the given algebraic expression: [a+(b-c)]*[(d-e)/(f+g-h)].
Also write preorder, inorder and postorder traversal methods for the tree. (8)

14) Construct tree for the given infix expression: (3a - b)(6 x + y).
Also write preorder, inorder and postorder traversal methods for the tree. (8)

15) Draw the binary tree for the given algebraic expression: (a+b-c)/((f+g-h)*d).
Also write preorder, inorder and postorder traversal methods for the tree. (8)

16) Draw the binary tree for the given algebraic expression: ((6+(3-2)*5)^2+3).
Also write preorder, inorder and postorder traversal methods for the tree. (8)

17) Draw the binary tree for the following (5)
INORDER: E, A, C, K, F, H, D, B, G
PREORDER: F, A, E, K, C, D, H, G, B

18) Draw the binary tree for the following preorder inorder and traversal. (5)
PREORDER: A, B, C, E, I, F, J, D, G, H, K, L
INORDER: E, I, C, F, J, B, G, D, K, H, L, A

19) Draw the binary tree for the following inorder and postorder traversal. (5)
INORDER: D, B, E, A, F, C, H, G
POSTORDER: D, E, B, F H, G, C, A

20) Draw the binary tree for the following postorder and inorder traversal. (5)
POSTORDER: G, D, B, H, I, E, F, C, A
INORDER: D, G, B, A, H, E, I, C, F

21) Draw a binary search tree for the following list of numbers and traverse it in
preorder, inorder and postorder: 14, 15, 4, 9, 7, 18, 40, 35, 16, 13 (8)

22) Construct a binary search tree for the following list of numbers and traverse it in
preorder, inorder and postorder: 66, 26, 22, 34, 47, 79, 48, 32, 78 (8)

23) Construct a binary search tree for the following list of numbers and traverse it in
preorder, inorder and postorder and: 14, 15, 4, 9, 7, 18, 23 (8)

24) Explain the method of representing the graphs using sequential method
with an example. (5)

25) What is adjacency matrix and path matrix, explain with an example. (5)

26) Define adjacency matrix and path matrix and also write the same matrices
for the following graph G: (5)
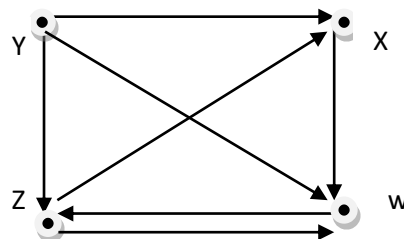
27) Explain linked representation of the graph with an example. (6)
28) What are the 4 steps involved in the deletion of a node N in the graph G. (5)
29) Write an algorithm for breadth first search (BFS) for a graph. (5)
30) Write an algorithm for depth first search (DFS) for a graph. (5)

BCAC233
Visual Basic .NET Programming

2 marks Questions:

UNIT I

1. Mention the four types of applications can be developed in .Net framework.
2. What is CLR? How it functions?
3. What is the purpose of namespaces? Mention the use of any 2 namespaces in VB .Net.
4. What are solutions and projects?
5. Mention any four File extensions used in VB .Net.
6. What is VBIDE? Mention any two components of VBIDE.
7. Mention any 4 types of graphical designers.
8. Write the purpose of Properties Window and Form Designer.
9. What do you mean by Intellisence?
10. List any four intellisence features.
11. Name any four tools available in the VB.NET ToolBox.
12. What is Server Explorer?
13. What is the use of Option Explicit?
14. Write any FOUR unique properties of form.
15. Differentiate visible and enable properties.
16. List any 4 data conversion functions.
17. Write the syntax of declaring variables and give one example for declaring variable.
18. Write the purpose of the following: (1 Mark each)
    a. IsArray( )
    b. IsDate( )
    c. IsDBNull( )
    d. IsError( )
    e. IsNumeric()
    f. IsReference( )
19. How do you declare arrays in VB.NET? Give example.
20. What is the need of ReDim and Preserve keywords?
21. What are the two ways of writing comments in VB.NET? Give example.
22. Write the syntax of MID(). Give example.
23. Differentiate OrElse and AndAlso logical operators.
24. Differentaite string operators '&' and '+'
25. Differentiate arithmetic operators \ and / with example.
26. What is the use of **With** statement. Give an example.
27. Write any two methods of System.Math namespace.
28. To solve any expressions including various types of operators.
29. Write the purpose of the following math methods.
    a. Abs
    b. Atn
    c. Cos
    d. Log
    e. Round
    f. Sin
    g. Sqr
30. Mention the use of any 2 date and time properties.

UNIT II

31. Differentiate Sub procedures and functions.
32. What is block scope?
33. What are exceptions?

34. What is exception handling in VB? List two types of exception handling.
35. Write the purpose of Resume Next statement
36. Give an example for **Finally** keyword.
37. How do you determine the information on exceptions using Err object?
38. Differentiate IsMdiChild and IsMdiContainer properties of Forms.
39. What do you mean by events?
40. What do you mean by methods?
41. Write the purpose of Show and Hide methods of VB.NET Forms.
42. Specify any four values of FormBorder style property.
43. What is the use of Windowstate property? Specify the values .
44. What is MDI ?
45. Write the MDILayout enumeration values for arranging MDI child forms.
46. Differentiate GotFocus and LostFocus events.

UNIT III

47. How do you make a textbox non editable during run time?
48. Differentiate textbox and rich textbox.
49. Differentiate textbox and labels?
50. Write the code to create a TextBox.
51. What is the use of Autosize property of label?
52. How can you link the Web using Link Labels?
53. Differentiate Checkboxes and Radio Buttons.
54. Differentiate Panels and Group boxes.
55. Differentiate Visible and Enabled properties.
56. Differentiate Readonly and Enabled properties of textbox.
57. What is the use of HideSelection property of the text box.
58. Write the code for underlining and setting text color of a selected text in a rich textbox.
59. Specify he various ways of aligning the text in labels.
60. How do you create Access Character for a button?
61. How to access and set the state of a checkbox/radio button? Give example.
62. Mention the use of FlatStyle and Image properties of Button control
63. How do you add picture to a button.
64. Describe the **items** and **multicoloumn** properties of a ListBox.
65. How do you determine the selected item in a list/combo box?
66. Describe the **sorted, and Text** properties of a listbox.
67. Write the purpose of CheckedIndeces and GetItemCheckState properties of Checkedlist box.
68. How to
    a.   Clear a a combo box
    b. Get the number of items in a combo box.
69. Differentiate Listbox and combobox.
70. How to create multiselect list boxes? Give example.
71. Mention the purpose of Progressbar and Trackbar.
72. How to add collection of objects in a listbox at once?
73. Write the purpose of Date, Day, DayOfWeek, Ticks properties of DateTime Picker.
74. What is the purpose of ToolTip? How to set it?
75. Differentiate DateTimePicker and MonthCalender Controls.
76. Name FOUR built in Dialog Boxes.
77. Explain Menu Access Keys and Creating Menu Shortcuts.
78. Mention Four modes of List Views.

UNIT IV

79. How to add checkmark to menu items using Menustrip control?
80. How to add access key to menu items in Menustrip control?

81. How to create shortcuts to access menu items in Menuscript control?
82. What are the steps involved to merge menu items?
83. What is context menu? How to use it?
84. Name FOUR built in Dialog Boxes.
85. List any 4 properties of ColorDialog control class.
86. List any 4 properties of SaveFileDialog control class.
87. What is the purpose of ADO.NET?
88. Difference ExecuteReader() and ExecuteScalar() methods.
89. What is data adapter? List any two data adapters in VB.NET.
90. What are the Steps involved while accessing data in dataset.
91. Write a note on Command object in ADO.
92. What is data binding? List different types of data binding available in VB.NET
93. Write the difference of Simple Data Binding and Complex Data Binding.
94. What are the advantages of data binding?
95. What are the disadvantages of data binding.
96. How to list all records from a table using SQL statement?

Questions for more than 2 marks
UNIT I
1. Write a note on Code designer and Graphical designer. (4)
2. List and explain any three mouse events in VB.NET.
3. List and explain any three keyboard events in VB.NET.
4. Write a note on Dynamic help window and Component tray. (4)
5. Write short note on (4)
    a. The .NET Framework
    b. Common Language Runtime
6. Describe any Five System Namespaces.
7. Explain the keywords Public, Private, Friend, Protected and Static used in declaring the variables (5)
8. Explain different components of VBIDE (6)
9. Explain the following parts of VBIDE. (6)
    a. The Toolbox
    b. The Solution Explorer
    c. The Properties Window
10. Explain any two Option statements with suitable example (5)
11. Explain various data types available in VB .Net. (6)
12. Write a note on Standard and Dynamic arrays. (5)
13. Explain the purpose of REDIM and PRESERVE keywords with suitable example . (4)
14. Explain with example the library functions used for Converting between
    i) Character and character codes
    ii) String and numbers (4)

15. Explain various arithmetical and logical operators available in VB .Net (6)
16. Arrange the arithmetic, string concatenation, relational and logical operators in their hierarchical precedence. (5)
17. Explain decision making statement if...elseif...else with syntax and example. (4)
18. Explain decision making with Select Case statement with syntax and example. (5)
19. Explain Do Loop, For loop and While loop with syntax and example for each.(Any two) (6)
20. Explain the use of For Each...Next loop. Give example. (3)
21. Differentiate Do….Loop While and Do Until…..Loop with their syntax and example (6)
22. Explain various ways of formatting date and time. (4)

23. Write the syntax of creating Sub procedures / functions in VB.NET . Give example.   (5)
24. Explain different scopes of variables in VB.NET with example   (6)
25. What is the use of ParamArray ? Explain with example code.   (4)
26. Explain how do you pass optional arguments to a sub procedure with example.   (4)
27. Explain the use of static variables in a procedure call with suitable example code.   (5)
28. Explain unstructured Exception handling with example.   (5)
29. Explain structured Exception handling with example.   (5)
30. What is meant by Class members and Objects members? Give one example
    for each with respect to Form class.   (3)
31. Write a note on MsgBox function.   (5)
32. Explain any FIVE unique properties of Form.   (5)
33. Explain any FIVE methods of Form.   (5)
34. Explain any FIVE events of Form.   (5)
35. How do you set i) Tab order for Controls and ii)Form's initial positions?   (4)
36. Write a note on InputBox function.   (4)
37. Explain   (7)
    a.   Creating MDI applications
    b.   Creating MDI child windows in code
    c.   Arranging MDI child forms
38. Explain   (5)
    a.   Creating a dialog box
    b.   Creating Accept and Cancel button

39. Describe any five mouse Events.   (5)
40. Explain any three mouse Events and two keyboard events.   (5)
41. Explain how do you send keystrokes to other programs with example procedure.   (3)

UNIT III

42. Explain the following controls   (6)
    a.   TextBox Control
    b.   RichText Boxes
    c.   Labels and Link Labels
43. Explain the following properties of a textbox   (5)
    i)   Multiline
    ii)   MaxLength
    iii)   Wordwrap
    iv)   Scrollbar
    v)   PasswordChar
44. With example, explain how do you select and replace text in a textbox.   (4)
45. How do you perform Cut, Copy and Paste Clipboard operations in VB .Net.
    Explain with example   (6)
46. Explain the procedure for creating the text box in code with example code.   (4)
47. Write KeyPress event to check whether a single digit is entered into a textbox by the user (3)
48. Explain the following with examples:
    a.   Adding bullets to Rich Text Boxes.
    b.   Setting Text Color in RTF Boxes
    c.   Saving and Loading RTF files from and to Rich Text Boxes.
    d.   Indenting text in rich text boxes   (3+2+2+3)

49. Explain the procedure for creating the text box in code with example code.   (4)
50. How do you create LinkLabel in VB.NET? Write the use of LinkLabel.   (4)
51. Write procedure to set the following for the button's click event :   (3)

a. Button's caption
b. Button's foreground and background color
c. Button's font

52. How to add controls to Group Boxes and Panels in code(3)
53. What are the various ways of selecting items from a listbox? Explain. (3)
54. Write the code for (5)
   a. Removing items from a list box
   b. Adding items
   c. Sorting a listbox
   d. Determining how many items are in a listbox
   e. Determining which listbox items are selected. (5)
55. With an example explain how to add items to checked list boxes in code. (4)
56. Explain the various styles of displaying items in combo box? (3)
57. How to add collection of objects to a list box at once? (2)
58. How do you add items and remove items to / from a combo box?
59. Explain (5)
   a. Setting or Getting the Image in a Picture Box
   b. Adjusting Picture Box size to contents
   c. Handling picture box events
60. What is the use of scrollbar? Explain its unique properties. (5)
61. What is the use of trackbar? Explain its unique properties. (5)
62. Explain DateTimwPickers with their static properties. (5)
63. Name any six custom formats of of Date Time Pickers. (3)
64. Write how do you handle Timer Events? Create an Alarm Clock and explain. (6)
65. Write a note on ToolBars. (4)
66. Write a note on Image list, list view, tree view, status bar (Each 4)
67. Program to create any tree view

UNIT IV

68. How ti create menu access keys, menu shortcuts and check marks to menu items? (4)
69. How to merge MDI menus? (4)
70. What is a context menu? How to create it? (4)
71. Write a note on ADO.NET.
72. Write about Simple Data Binding and Complex Data Binding. (4)
73. Write a note on Listing all the records from a table using SQL.
74. Explain the following with minimum Four properties, events and methods: (4 Marks each)
   a. Open File Dialogs
   b. Save File Dialogs
   c. Font Dialogs
   d. Print Preview
   e. Page setup
   f. Color Dialogs
75. How to create menus in VB.NET? Explain.
76. Explain the following objects of ADO.NET (1 Mark each)
   a. Data Connection objects
   b. Command objects
   c. Data table objects
   d. Data relation objects
   e. DataRaw objects
   f. Data column objects
77. Give one example for each of the following in SQL (5)
   a. The IN clause
   b. The LIKE clause

  c. SELECT statement

  d. The BETWEEN clause

  e. The DISTINCT clause

78. Explain the ways to use data binding in VB.NET applications.   (6)

79. What are the various ways of navigating through the datasets? Explain (6)

80. Explain the following operations of dataset with code example   (6)

  a. Adding new record

  b. Deleting a record

  c. Canceling an operation

81. Write a note on data validation in controls.   (3)

82. Explain with example how to create data columns and rows in code. (6)

83. With suitable example, explain the accessing of individual data items in a table (5)

84. How to write and read dataset using XML? Explain with code example (6)

BCACE 236
Hardware and PC Maintenance

Unit I

2 Marks Questions

1. What do you mean by Complete PC?
2. Write a note on Monitor and sound device.
3. What are the standard sets of External Connections?
4. Write a note about USB Connectors.
5. What is Web Servers?
6. What are NIC cards?
7. What is crimping and mention its types.
8. Write the Steps to identify MAC Address.
9. Write the Steps to create Local User Account.
10. What are ARP Tables, Which command you will use inorder to display ARP Table.
11. What is NetStat Command, Write its syntax.
12. What is the use of IPConfig Command?
13. What is the use of Net Command?
14. What is EDB?
15. What are Registers?
16. What is Clock Speed and Clock Wire.
17. What are the symptoms of Overheating In CPU?
18. What is RAM, Mention its Types.
19. What is BIOS?
20. What is CMOS And RTC?
21. Expand BIOS,CMOS,RTC.
22. What is parallel and Serial ATA
23. What is USB Host Controller?
24. What are POST Cards?
25. What is System Lookup and Page fault?
26. What is Auto-detection.
27. What is partition table in Master Boot Record.
28. What are USB Root Hub?
29. Expand BSoD,SPod,NMI.
30. What is Device Drivers

5 Marks Questions
1. Explain Any Five Devices and Their Connectors.
2. What is NIC And Explain how to fix NIC onto a system.
3. Explain Crimping with its Types.(Straight & Cross over cable)
4. Explain how to configure IP Address.
5. Write a short note on
   i. Ping Command
   ii. IPConfig Command
6. Write a short note on
   i. NetStat Command
   ii. Tracert Command
   iii. Net Command
7. Explain Ping Command, and write any 5 ping command options
8. What is Microprocessor, Explain its component with Man in the   box example.

9. Write a note on SDRAM And RDRAM.
10. Write a note on BIOS.
11. Explain Magnetic Hard drives and Solid state drives.
12. Explain Master Boot Record.
13. Explain partitioning and formation process.
14. Explain about installation of Removable Media.

Unit II

2 Marks Questions
1. What are the different types of Installation?
2. What is Multiboot Installation?
3. What is Media Error?
4. What is Graphical Mode Error?
5. Explain Post Installation Task?
6. What are Patches and Service packs.
7. What is windows Sidebar?
8. List Windows Key Shortcuts.
9. What do you mean by Device Manager?
10. What do you mean by Activation in Windows?
11. What do you mean by backup in windows?
12. What are the different tabs available in Task Manager?
13. What is Patch Management?
14. What do you mean by Registry Maintenance?
15. What is the use of System Information Tool?
16. What do you mean by Optimization?
17. How we can Remove Software?
18. What do you mean by System Restore?
19. What are Full-duplex and Half-duplex?
20. What is Modem?
21. What is dial-up Connection?
22. What is Malware?
23. What are the different forms of Malware?
24. Explain   i. Keylogger   ii. Rootkit
25. Explain i.Replication   ii.Activation.
26. What are Spyware?
27. What is Character Map?
28. What is Disk Defragmenter?

5 Marks Questions
1. Explain the OS Installation Process.
2. What are the different types of errors you will get at the time of OS installation?
3. Explain Windows 7 Interface.
4. Explain Operating System Folders.
5. Explain Device Manager.
6. Explain the use of Task Manager.
7. Explain how to Maintain Windows.
8. Explain Installation and removing software concept.
9. Explain backup personal data & System restore conceptin windows.
10. Explain Failure to boot concept.
11. How we can install printer in windows?
12. How to Install and configure Wired Network?
13. Explain about Network Security.
14. How we can prevent Malware?

BCACE 237
Desktop Publishing

UNIT-I
DTP FUNDAMENTALS

2 Mark Questions:
1. Define Desktop Publishing.
2. What are the three main types of software's required for DTP?
3. Name any four main elements of DTP.
4. Differentiate Halftone Dotes and Dithers.
5. Expand: WYSIWYG, CMYK
6. What is Pixel and Bitmap?
7. Differentiate Bit-mapped Graphics and Vectorised Graphics.
8. Expand: DPI, LPI
9. What is Ascender and Descender?
10. Name any four DTP Terminology.

Long Answers
1. Briefly explain Hardware and Software for DTP. (5)
2. List and explain any five elements of DTP. (6)
3. Explain the following DTP Terminology: (5)
    i. Bleed   ii. DPI   iii. Gutter   iv. Halftone   v. Dithering

Adobe Page Maker 7.0
2 Mark Questions:
1. Define PageMaker.
2. Mention any four tools available in PageMaker.
3. How to choosing Preset Page Views in PageMaker?
4. What is the purpose of using Pointer Tool and Text Tool in PageMaker?
5. What is Window Shade? What are the options in it?
6. What do you mean by Publication?
7. What is Master Page? Mention basic design elements in Master Page?
8. What is Zero Point? Where it is places in Publication Page?
9. What is Nonprinting Guides? Name the three kinds of Nonprinting Guides?
10. What are the two ways to create Text blocks?
11. Mention the various options applies for Formatting Text in Page Maker?
12. Define Control Palette.
13. Name various shapes to be drawn in PageMaker frame.
14. How to duplicating an Object in PageMaker Publication Page?
15. How to Grouping and Ungrouping Objects?
16. What is Object Locking?
17. Differentiate Rotating and Reflecting an Object.
18. Name various Paper printing options available in Print Document Dialog Box.

Long Answers
1. What is PageMaker? Explain any five tools available in PageMaker. (6)
2. What is Object? How to work with Text and Graphics in PageMaker? (6)
3. Briefly explain the steps to create Publication. (5)
4. Explain the basic parameters to setup publication page. (5)
5. Briefly explain the concept Master Page. (5)
6. Explain Nonprinting Guides. (6)

7. Explain various ways to apply Character-level and Paragraph-level formatting. (6)
8. Explain various options to drawing shapes in Frame. (6)
9. Explain various options for the objects in Control Palette. (5)
10. Explain the following: (6)
    i.   Grouping and Ungrouping Objects
    ii.   Locking Objects
11. Explain the following: (6)
    i.   Reflecting Objects
    ii.   Rotating Objects
12. Explain different options in Printing PageMaker Publication. (6)

UNIT-II
CORELDRAW 12

2 Mark Questions:
1. Mention any four terminologies used in CorelDraw.
2. Mention any four options available in CorelDraw Application Window.
3. What is Flyout and Dockers?
4. Mention any four CorelDraw flyout tools.
5. What is Template? Give its extension with example.
6. Give various options in Zoom flyout tool.
7. What are the various options in Perfect Shape flyout?
8. Briefly explain filling the patterns to Objects.
9. How to create drop shadows?
10. Differentiate Artistic text and Paragraph text.
11. How to create illusion of three dimensional depth in CorelDraw objects?

Long Answers
1. List and explain important terminology used in CorelDraw. (5)
2. Explain different parts in CorelDraw Application Window. (5)
3. List and explain any five flyout tools in CorelDraw. (5)
4. Briefly explain the concept working with Templates. (5)
5. Explain the following: (5)
    i.   Undoing & Redoing
    ii.   Zooming & Unzooming
6. How to draw various shapes in CorelDraw? Explain. (5)
7. How to apply pattern fills? Explain. (5)
8. Explain the concept color models in CorelDraw. (5)
9. Explain the following: (5)
    i.   Applying perspective to objects.
    ii.   Creating drop shadows
10. How to print a drawing? Explain. (5)
11. How to use special effects? Explain. (5)