BSc IT C Programming (2013-2017)
BSc – IT: C Programming
Unit I

Q1. What do you understand by type conversion? (2013)
Q2. Why we need different data types? (2013)
Q3 What is the output of the following (2013)

```
main()
{
        Printf("%d", printf("Tim"));
}
```

Q4. Explain typedef (2014)
Q5. Write the output of following (2014)

```
main()
{
        char name[20];
        int n;
        printf("Enter name is: \n");
        name[20] = "Information";
        n = strlen(name);
        printf("%d", n);
}
```

Q6. Write the size of double data type in C. (2014)
Q7. Write a program in C language to display the table of a given integer. (2014)
Q8. Explain various data types used in C. (2014, 2015)
Q9. Write a program in C to reverse a given number. (2015)
Q10 Define pointers and its memory occupation along with format specifiers. (2016)
Q11. In C, how are the Boolean values true and false represented? (2016)
Q12. What is escape sequence? What is it utilization? (2017)
Q13. Write output of the following program (2017)

```
main()
{
        int p = 0;
        while ( p++ < 5 )
        {
                printf("%d\n", p);
                getch();
        }
}
```

Q14. How is C Program compiled as executed? Explain (2017)
Q15. Write an algorithm to find average of marks obtained by 10 students (2017)
Q16. Explain various types of operators in c language (2017)
Q17. What is nested if statement? Explain it with suitable example. (2017)
Q18. What is the difference between = and == operators? (2016)
Q19. Explain ternary operator with an example. (2016)
Q20. What do you understand by escape sequence? Describe any five escape sequences. (2016)
Q21. What are the compound assignment operators and how are they useful? (2016)
Q22. Explain arithmetic operators on pointers (2016)

Unit II

Q1. What is array utilization?   (2013)
Q2. What is Multi-dimension array?   (2013)
Q3. Explain pointers to array.   (2013)
Q4. Write a program to calculate length of a text file by using file handling concept.   (2013)
Q5. Explain sequential file organization and ISAM with an example.   (2013)
Q6. What is the advantage of union over structure?   (2014)
Q7. What is the use of pointer in array?   (2014)
Q8. Write a C program to add two matrix (2-D Array).   (2014)
Q9. Write the syntax for different loop control structures and write a program to print the sum of
digits of a given number.   (2014)
Q10. Explain malloc and calloc function with their syntax and examples.   (2015)
Q11. What will be the labels marked 1 and 2 if the BFS traversing results as a b c d e for the following
graph.   (2015)
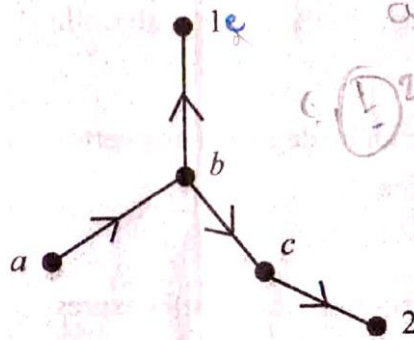
Q12. How many binary trees can be drawn with 3 vertices? Also draw them.   (2015)
Q13. Explain link list structure with suitable diagram.   (2015)
Q14. Define recursion.   (2016)
Q15. What do you mean by C character set?   (2016)
Q16. Distinguish between formal and actual arguments   (2017)
Q17. How does a structure differ from a union?   (2017)
Q18. A function A(p,q) is defined as follows:
        (2017)
        A(p,q) = q + 1 -> if p = 0
                = A (p – 1; 1), -> if q = 0
                = A (p – 1, A (p, q – 1)), otherwise
        write a recursion 'C' function to compute A (p, q)
Q19. Explain various storage classes available in C language.   (2016,2017)
Q20. Difference between break and exit() ?   (2016)
Q21. Differentiate between call by value and call by reference?   (2016)
Q22. Differentiate between structure and union?   (2016)
Q23. Explain the following functions in C   (2016)
        calloc()
        realloc()
        fflush()
        fseek()
        strcmp()
Q24. Explain various iteration constructs available in C   (2016)
Q25. Explain various jump statements with examples in C   (2016)

Q1. Give the pre-fix for the following expression   (2013)

(a + b) * d / c * (e –f)

Q2. Give the inorder, postorder for the following tree.   (2013)
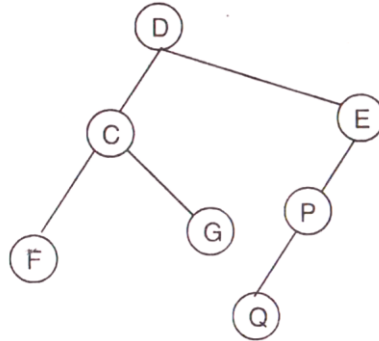
Q3. What is threaded tree?   (2013)
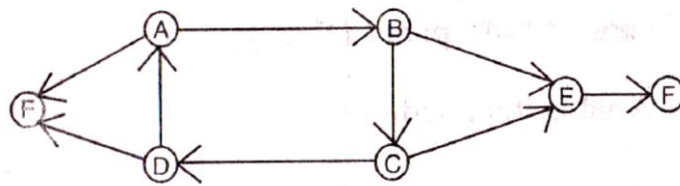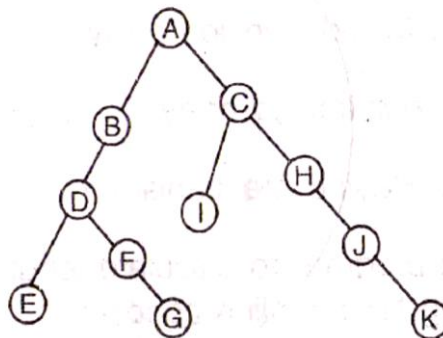Q4. Explain double link-list?   (2013)
Q5. What is composite data type?   (2013)
Q6. What is Hashing mechanism?   (2013)
Q7. Prove that the maximum number of node in a binary tree of height "K" is $2^{k-1} – 1$.   (2013)
Q8. Apply DFS and BFS to visit all vertices in the following graph.   (2013)
        show each step clearly.
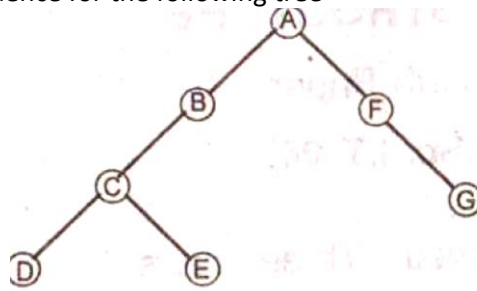

Q9. Give the pre-order and post-order traversal of the following tree.   (2013)

Q10. What are the different types of data structures?   (2014)

Q11. Give the pre-order sequence for the following tree   (2014)

Q12. Define algorithm.   (2014)
Q12. Describe the hashing mechanism   (2014)
Q13. What is the difference between Stack and Queue?   (2014)
Q14. Explain the double link list   (2014)
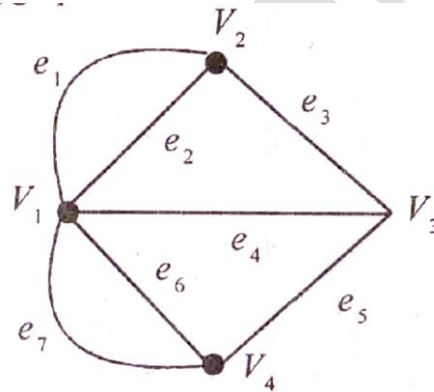Q15. What is stack?   (2015)
Q16. What is queue?   (2015)
Q17. What is the maximum degree of any vertex in a simple graph with n-vertices?   (2015)
Q18. Find prefix equivalent of postfix expression: (2015)
        c a b + * d −
Q19. What is in-degree?   (2015)
Q20. Write down adjacency matrix and incidence matrix of the following graph   (2015)

Q21 Differentiate between binary tree and binary search tree   (2016)
Q22. The following sequence of operation is performed on a stack?   (2017)
push(1), push(2), pop(), push(1), push(2), pop(), pop(), pop(), push(2), pop()
        Give sequence of pushed and popped values.
Q23. Which matrix is known as adjacency matrix for a digraph?   (2017)
Q24. Give the smallest number of keys that will force a B-Tree of order 3 to have a height 3.(2017)
Q25. What is a threaded tree?   (2017)
Q26. Write a program to evaluate postfix expression with the help of stack   (2017)
Q27. What do you mean by link list and generalized list?   (2017)
Q28 Prove that the maximum number of nodes in binary tree of height "K" is $2^{K-1} - 1$ (2017)
Q29. What is the difference between tree and graph?   (2016)
Q30. Calculate maximum number of nodes in binary tree extended up to length 5.   (2016)
Q31. What is a threaded tree?   (2016)
Q32. What is the difference between pop and peek functions used in stack?   (2016)
Q33. Convert the following infix expressions into both prefix and postfix expressions   (2016)
   8 + 3 * 7 / 2 % 9 − 4 * 7
        9 * 4 + 8 % 4 / 7 * 3 +4
Q34. Explain circular queue algorithm   (2016)

Q1. Explain the following with examples   (2013)
      Qick Sort
      Merge Sort
Q2. Explain the various sorting techniques and write the complexity for all   (2014)
Q3. What is Big-Oh notation?   (2015)
Q4. What is Big-Omega notation?   (2015)
Q5. What is space complexity?   (2015)
Q6. What is sorting algorithm is efficiently used in a playing card game to arrange cards?   (2015)
Q6. What is the order of selection sort algorithm?   (2015)
Q7. Explain selection sort algorithm with example.   (2015)
Q8. What is the time complexity of insertion sort algorithm?   (2017)
Q9. Explain bubble sort algorithm with an example   (2016)
Q10. Explain binary search algorithm with an example.   (2016)

BSc – IT: C Programming
Unit V

Q1. Search the number 14 using the linear and binary search show all steps　　　(2013)
　　　25 8 15 18 20 32 14 07 05 01
Q2. Write short notes on the following　　　(2013)
　　　Travel salesman problem
　　　Kruskal algorithm
　　　Tower of Hanoi
　　　Header linked list.
Q3. Define Travelling salesman problem.　　　(2014)
Q4. Explain and compare the different traversal techniques used in graph.　　　(2014)
Q5. Write a C Program for the Linear and Binary Search.　　　(2014)
Q6. Write a C program to implement the merge sort techniques.　　　(2014)
Q7. Explain BFS algorithm with suitable example.　　　(2015)
Q8. Explain DFS algorithm with suitable example.　　　(2015)
Q9. Explain Kruskal algorithm with suitable example　　　(2015)
Q10. Explain Prism algorithm with suitable example.　　　(2015)
Q11. Write a function to find minimum traversal from F to C in the following weighted graph(2017)
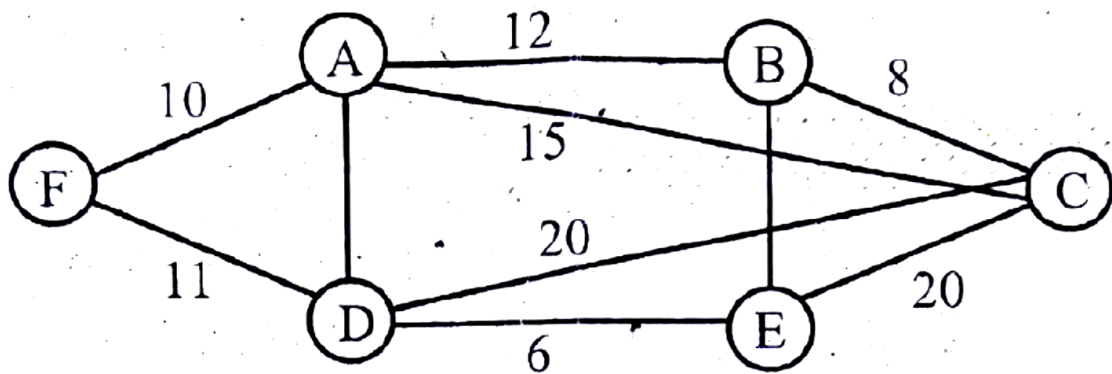
Q12. Write all the step for search 14 using linear and binary search　　　(2017)
　　　25 08 15 20 32 14 07 01