Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 71672

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Second Semester

Computer Science and Engineering

CS 6202 – PROGRAMMING AND DATA STRUCTURES – I

(Common to Information Technology)

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the output of the code and justify the answer.

```
#include<stdio.h>
main( )
{
    char const *st="HeIlo";
    *st= 'M';
    printf(%c\n", st);
    st = "Bye";
    printf("%s\n", st);
}
```

2. Identify the errors in the following Preprocessor statements.

- #define ABS(x) (x>0)?(x) : (-x)
- #ifdef(FLAG)
  #undef FLAG
  #endif

3. State the output of the code and give the explanation.

```
#include<stdio.h>
main( )
{
    struct aa
    {    int x; char y;  };
    struct bb
    {    int z;    };
    union A
    {    struct aa a; struct bb b;  }B;
     B.a.x = 512;
    Printf("%d %d %d", B.a.x, B.a.y, B.b.z);
}
```

4. Mention the different file opening modes in C.

5. Define abstract data type.

6. What are the advantages and disadvantages of linked lists over arrays?

7. Define stack. List some of the applications of stack.

8. What are double ended queues?

9. Sort the following numbers using insertion sort.

   3, 1, 4, 1, 5, 9, 2, 6, 5

10. Give the significance of extendible hashing.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Write a C program using functions to add two matrices and return the resultant matrix to the calling function. (8)

    (ii) Write a C Program to implement any four string handling functions using functions and pointers. (8)

Or

(b) (i) Write a program to convert all the upper-case letters to lower-case and vice versa in a given string. (8)

    (ii) Explain about how to declare pointer to a function with an example. (8)

12. (a) Define a structure to store details of 10 bank customers with customer name, account no., balance, and city. Write a C program to store the details of the customer in the bank, access and print the customer details for a specified account no. (16)

Or

(b) (i) Write a C-program to read the contents of file "in.txt" and write the contents to a file "out. txt". (8)

(ii) Explain about file manipulators with snippet code for each. (8)

13. (a) Develop a C program to split a linked list into two sub lists containing odd and even ordered elements in them respectively. (16)

Or

(b) Write a C program to add two polynomials using linked list. (16)

14. (a) (i) Write an algorithm to convert the infix expression to postfix expression using stack. (8)

(ii) Simulate the conversion of infix to postfix expression using stack for the following expression : (8)

$3 - (4 / 2) + (1 * 5) + 6$

Or

(b) (i) Formulate an ADT to implement Queue using inked list. (8)

(ii) Write a C Program to implement the circular queue using arrays. (8)

15. (a) (i) Sort the following sequence using quick sort. (8)

3, 1, 4, 1, 5, 9, 2, 6, 5, 3, 5

(ii) Write a C program to search a number with the given set of numbers using binary search. (8)

Or

(b) Illustrate with example the open addressing and chaining methods of collision resolution techniques in hashing. (16)
