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(Pages : 2)

Name.....

Reg. No.....

**FOURTH SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION, APRIL 2021**

Computer Science

BCS 4C 04—DATA STRUCTURE USING C PROGRAMMING

(2017 Admissions)

Time : Three Hours

Maximum : 64 Marks

**Section A**

*Answer all questions.*

*Each question carries 1 mark.*

1. Define Data Structure.
2. Define complexity of algorithms.
3. Matrices with high proportion of zero entries are called \_\_\_\_\_.
4. \_\_\_\_\_ is a list of a finite number  $n$  homogeneous data elements.
5. A header linked list always contains a special node called \_\_\_\_\_.
6. Write one example for linear data structure.
7. If the size of the stack is 10 and we try to add 11<sup>th</sup> element in to the stack, the condition is called \_\_\_\_\_.
8. Define a queue.
9. \_\_\_\_\_ refers to the operation of finding the location of a given item in a collection of items.

(9 × 1 = 9 marks)

**Section B**

*Answer all questions.*

*Each question carries 2 marks.*

10. Differentiate between primitive data types and abstract data types.
11. Briefly explain sparse matrix representation with example.
12. Write a procedure to PUSH an item onto the stack and delete the top item from the stack.
13. Define circular queue and Deque.
14. What is the difference between linear and binary search ?

(5 × 2 = 10 marks)

**Turn over**

**Section C (Short Essay Type)**

*Answer any five questions.*

*Each question carries 5 marks.*

15. Define 2D array. Explain how 2D arrays are represented in memory.
16. What is the difference between a queue and a stack ?
17. Write a program for traversing a linked list with suitable example.
18. What are the applications of stack and queue ?
19. Write the procedure for inserting an element into the array.
20. Briefly explain doubly linked list. Write a program for inserting a new node into a doubly linked list.
21. Explain the working of selection sort.
22. Briefly explain linear search and binary search algorithms. Compare both.

(5 × 5 = 25 marks)

**Section D (Long Essay Type)**

*Answer any two questions.*

*Each question carries 10 marks.*

23. Explain any two types of sorting with example.
24. Explain insertion and deletion operations in a queue.
25. Write notes on : a) Header linked list b) Priority queue.

(2 × 10 = 20 marks)

**FOURTH SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION, APRIL 2020**

Computer Science

BCS 4C 04—DATA STRUCTURE USING C PROGRAMMING

(2017 Admissions)

Time : Three Hours

Maximum : 64 Marks

**Section A***Answer all the questions.**Each question carries 1 mark.*

1. Define Abstract Data Type.
2. The matrix with zeros as its dominating elements is called \_\_\_\_\_.
3. A \_\_\_\_\_ with insertion and deletion done at either ends or may be appropriate restricted at one of the ends.
4. List out limitation of linear queue.
5. Explain logical representation of linked list.
6. Node is collection of \_\_\_\_\_.
7. The availability of two links \_\_\_\_\_ and \_\_\_\_\_ permit forward and backward movement during the processing of the list.
8. The complexity of quick sort algorithm is \_\_\_\_\_.
9. What is time complexity ?

(9 × 1 = 9 marks)

**Section B***Answer all the questions.**Each question carries 2 marks.*

10. List out areas in which data structures are applied.
11. What will happen in a C program when you assign a value to an array element whose subscripts exceed the size of array ?
12. What is column major order ? Explain.

**Turn over**

13. How to represent a linked list in C program ? Explain.
14. How to sort a list of numbers in ascending order using Bubble. Explain with algorithm and example.

(5 × 2 = 10 marks)

### Section C

*Answer any five questions (short essay type).*

*Each question carries 5 marks.*

15. What are the different classifications of data structure ? Explain each.
16. Explain the steps for the development of algorithm. Write an algorithm to find average numbers from a list of number.
17. What are the benefits of the sparse matrix ? Write a program to multiply two matrices.
18. Explain the operation performed on Queue. How it is implemented in C programming.
19. Write algorithm for push/pop operation on a linked stack.
20. Define ordered linear search explain with algorithm and example.
21. Write short note on merge sort with algorithm
22. Write a program to find prime numbers from a list of numbers.

(5 × 5 = 25 marks)

### Section D

*Answer any two questions (long essay type) out of three questions.*

*Each question carries 10 marks.*

23. Write a program to implement singly linked list, using recursive functions. Explain with example.
24. What do you mean by polynomials ? How singly linked list representation of polynomials ? Write an algorithm to add two polynomials.
25. Trace quick sort on the list  $L = \{11, 34, 67, 78, 78, 78, 99\}$ . What are your observations ? Explain with algorithm.

(2 × 10 = 20 marks)

C 61261

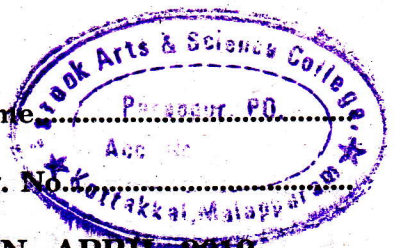
(Pages : 2)

Name

Parangur, P.O.

Reg. No.

App. No.



**FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2019**

(CUCBCSS—UG)

Computer Science

BCS 4C 04—DATA STRUCTURE USING C PROGRAMMING

(2017 Admissions)

Time : Three Hours

Maximum : 64 Marks

**Section A**

*Answer all the questions.*

*Each question carries 1 mark.*

1. Inserting an item into the stack when stack is not full is called \_\_\_\_\_ Operation and deletion of item from the stack, when stack is not empty is called \_\_\_\_\_ operation.
2. ADT stands for \_\_\_\_\_.
3. Define sparse matrix.
4. Define circular linked list.
5. Logical or mathematical model of particular organization of data is called \_\_\_\_\_.
6. What is recursion ?
7. Node is collection of \_\_\_\_\_.
8. If top pointer's value is equal to the size of the stack then Stack is \_\_\_\_\_.
9. The number of interchanges required to sort 5, 1, 6, 2, 4 in ascending order using Bubble Sort is \_\_\_\_\_.

(9 × 1 = 9 marks)

**Section B**

*Answer all the questions.*

*Each question carries 2 marks.*

10. Explain different applications of data structures.
11. What is an array ? What are the different operations on array ?
12. Write an algorithm to insert an element into a stack using linked list.

**Turn over**

13. How to represent a singly linked list in C program ? Explain.
14. Write a program to search an element using linear search. Explain.

(5 × 2 = 10 marks)

### Section C (Short Essay Type)

Answer any five questions.

Each question carries 5 marks.

15. What are the different characteristics of data structure ? Explain each.
16. Write a program to add two sparse matrices using user defined functions pass parameters.
17. Define a two dimensional array. How it is represented in memory ?
18. Write a program to delete all duplicate elements from one dimensional array.
19. What are the different applications stacks ? Explain.
20. What are the different ways to implement queue in C ? Explain each.
21. Write an algorithm to insert an element in circular linked list.
22. Explain with example how we implement insertion sort.

(5 × 5 = 25 marks)

### Section D (Long Essay Type)

Answer any two questions out of three questions.

Each question carries 10 marks..

23. What is an algorithm ? What are the different categories of data structures ? Give example for each.
24. Define two-way linked list. Write a program to implement singly linked list, using recursive functions.
25. Write a note on :
  - (a) Circular queue.
  - (b) Applications of queue.
  - (c) Array vs. Linked list.

(2 × 10 = 20 marks)

**D 71671**

(Pages : 2)

Name.....

Reg. No.....

**THIRD SEMESTER B.A./B.Sc. DEGREE EXAMINATION, NOVEMBER 2019**

(CUCBCSS—UG)

Computer Science

BCS 3C 03—PROBLEM SOLVING USING C PROGRAMMING

(2017 Admissions)

Time : Three Hours

Maximum : 64 Marks

**Part A**

*Answer all questions.*

*Each question carries 1 mark.*

1. The smallest individual units of a C program are called \_\_\_\_\_.
2. Give an example for escape sequences.
3. Where an automatic variable is stored ?
4. The arguments which we pass to the main() function while executing the program are called \_\_\_\_\_.
5. Which is ternary operator ?
6. Give an example for exit controlled loop.
7. Which is the shift left operator in C ?
8. Name the string function to compare two strings.
9. Which built-in library function can be used to re-size the allocated dynamic memory ?

(9 × 1 = 9 marks)

**Part B**

*Answer all questions.*

*Each question carries 2 marks.*

10. What are the different fundamental data types ? Explain briefly.
11. Write a program for finding largest of three numbers using nested if.
12. What are the different input statements in C ? Explain with examples.

**Turn over**

13. Write a program to check whether the given integer is Armstrong or not.
14. Distinguish between break and continue.

(5 × 2 = 10 marks)

### Part C

*Answer any five questions.*

*Each question carries 5 marks.*

15. What are flowcharts ? What are the different flowcharting symbols ? Explain with an example.
16. Write a c program to display number of days corresponding to given month and year.
17. What are operators ? How are they classified ? Explain.
18. Distinguish between exit controlled and entry controlled loops.
19. Explain switch statement with an example.
20. Write a G program for generating prime numbers between two ranges.
21. Explain the different string handling functions.
22. Write notes on basic file operations.

(5 × 5 = 25 marks)

### Part D

*Answer any two questions.*

*Each question carries 10 marks.*

23. What are the different array operations ? Explain.
24. (a) Write a C program to generate Fibonacci series using recursion.  
(b) Write a C program to find the product of diagonal elements of a matrix.
25. What are the different parameter passing techniques ? Explain with examples.

(2 × 10 = 20 marks)

C 62630

(Pages : 2)

Name.....

Reg. No.....

SECOND SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION, MAY 2019

Computer Science

BCS 2C 02—PROGRAMMING IN C

(2014 Admissions)

Time : Three Hours

Maximum : 64 Marks

**Part A**

*Answer all questions.*

*Each question carries 1 mark.*

1. \_\_\_\_\_ special symbol is allowed in a variable name.
2. Bitwise operators can operate on *int* and \_\_\_\_\_ data type.
3. In *switch* statement, each case instance value must be \_\_\_\_\_.
4. Print the output of the statement : *printf("\n Result is %f", ceil(1.44));*
5. In C, each string variable is terminated with a \_\_\_\_\_ character.
6. \_\_\_\_\_ library function is more suitable for reading a multi-word string in C.
7. \_\_\_\_\_ file mode allows to open a file for read and write mode and sets file pointer to the first character in the file.
8. Say True or False : Array passed as an argument to a function is interpreted as the address of the first element in the array.
9. Say True or False : *Volatile* is not a valid key word in C.

(9 × 1 = 9 marks)

**Part B**

*Answer all questions.*

*Each question carries 2 marks.*

10. Explain the function of *gets()* and *puts()* functions in C.
11. Explain the need of *switch* statement with illustration.
12. Define string variables in C. Explain how it is defined.
13. What do you mean by Scope and longevity of a variable ?
14. Define pointer variables.

(5 × 2 = 10 marks)

**Turn over**

**Part C**

*Answer any five questions.  
Each question carries 5 marks.*

15. Explain the fundamental data types in C.
16. Explain relational and assignment operators in C with examples.
17. What is entry-controlled and exit-controlled loop statements in C? Give examples.
18. Write a C program to print the sum of all odd number in between 1 and N.
19. Explain how the argument passing mechanism in user defined functions are achieved in C.
20. Give an account on different storage classes in C.
21. Explain the differences between *structure* and *union* with examples.
22. Explain briefly any three dynamic memory allocation functions in C.

(5 × 5 = 25 marks)

**Part D**

*Answer any two questions.  
Each question carries 10 marks.*

23. Write a C program to generate all prime numbers in between 1 and 100.
24. What is *if* construct? Explain the different forms of *if* construct with example.
25. Write a C program to exchange the values of two variables using a user-defined function *swap ()*.

(2 × 10 = 20 marks)

C 62630

(Pages : 2)

Name.....

Reg. No.....

SECOND SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION, MAY 2019

Computer Science

BCS 2C 02—PROGRAMMING IN C

(2014 Admissions)

Time : Three Hours

Maximum : 64 Marks

**Part A**

*Answer all questions.*

*Each question carries 1 mark.*

1. \_\_\_\_\_ special symbol is allowed in a variable name.
2. Bitwise operators can operate on *int* and \_\_\_\_\_ data type.
3. In *switch* statement, each case instance value must be \_\_\_\_\_.
4. Print the output of the statement : *printf (“\n Result is %f”, ceil(1.44));*
5. In C, each string variable is terminated with a \_\_\_\_\_ character.
6. \_\_\_\_\_ library function is more suitable for reading a multi-word string in C.
7. \_\_\_\_\_ file mode allows to open a file for read and write mode and sets file pointer to the first character in the file.
8. Say True or False : Array passed as an argument to a function is interpreted as the address of the first element in the array.
9. Say True or False : *Volatile* is not a valid key word in C:

(9 × 1 = 9 marks)

**Part B**

*Answer all questions.*

*Each question carries 2 marks.*

10. Explain the function of *gets()* and *puts()* functions in C.
11. Explain the need of *switch* statement with illustration.
12. Define string variables in C. Explain how it is defined.
13. What do you mean by Scope and longevity of a variable ?
14. Define pointer variables.

(5 × 2 = 10 marks)

**Turn over**

**Part C**

*Answer any five questions.*

*Each question carries 5 marks.*

15. Explain the fundamental data types in C.
16. Explain relational and assignment operators in C with examples.
17. What is entry-controlled and exit-controlled loop statements in C? Give examples.
18. Write a C program to print the sum of all odd number in between 1 and N.
19. Explain how the argument passing mechanism in user defined functions are achieved in C.
20. Give an account on different storage classes in C.
21. Explain the differences between *structure* and *union* with examples.
22. Explain briefly any three dynamic memory allocation functions in C.

(5 × 5 = 25 marks)

**Part D**

*Answer any two questions.*

*Each question carries 10 marks.*

23. Write a C program to generate all prime numbers in between 1 and 100.
24. What is *if* construct? Explain the different forms of *if* construct with example.
25. Write a C program to exchange the values of two variables using a user-defined function *swap ()*.

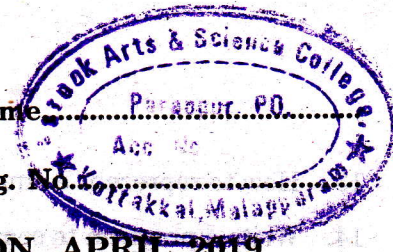
(2 × 10 = 20 marks)

C 61261

(Pages : 2)

Name: ..... Parappur, P.O.

Reg. No. .... Kottakkal, Malappuram



**FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2019**

(CUCBCSS—UG)

Computer Science

**BCS 4C 04—DATA STRUCTURE USING C PROGRAMMING**

(2017 Admissions)

Time : Three Hours

Maximum : 64 Marks

**Section A**

*Answer all the questions.*

*Each question carries 1 mark.*

1. Inserting an item into the stack when stack is not full is called \_\_\_\_\_ Operation and deletion of item from the stack, when stack is not empty is called \_\_\_\_\_ operation.
2. ADT stands for \_\_\_\_\_.
3. Define sparse matrix.
4. Define circular linked list.
5. Logical or mathematical model of particular organization of data is called \_\_\_\_\_.
6. What is recursion ?
7. Node is collection of \_\_\_\_\_.
8. If top pointer's value is equal to the size of the stack then Stack is \_\_\_\_\_.
9. The number of interchanges required to sort 5, 1, 6, 2, 4 in ascending order using Bubble Sort is \_\_\_\_\_.

(9 × 1 = 9 marks)

**Section B**

*Answer all the questions.*

*Each question carries 2 marks.*

10. Explain different applications of data structures.
11. What is an array ? What are the different operations on array ?
12. Write an algorithm to insert an element into a stack using linked list.

**Turn over**

13. How to represent a singly linked list in C program ? Explain.
14. Write a program to search an element using linear search. Explain.

(5 × 2 = 10 marks)

### Section C (Short Essay Type)

Answer any **five** questions.

Each question carries 5 marks.

15. What are the different characteristics of data structure ? Explain each.
16. Write a program to add two sparse matrices using user defined functions pass parameters.
17. Define a two dimensional array. How it is represented in memory ?
18. Write a program to delete all duplicate elements from one dimensional array.
19. What are the different applications stacks ? Explain.
20. What are the different ways to implement queue in C ? Explain each.
21. Write an algorithm to insert an element in circular linked list.
22. Explain with example how we implement insertion sort.

(5 × 5 = 25 marks)

### Section D (Long Essay Type)

Answer any **two** questions out of three questions.

Each question carries 10 marks..

23. What is an algorithm ? What are the different categories of data structures ? Give example for each.
24. Define two-way linked list. Write a program to implement singly linked list, using recursive functions.
25. Write a note on :
  - (a) Circular queue.
  - (b) Applications of queue.
  - (c) Array vs. Linked list.

(2 × 10 = 20 marks)

**D 51303**

**(Pages : 2)**

Name.....

Reg. No.....

**THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2018**

**(CUCBCSS—UG)**

**Complementary Course**

**BCS 3C 03—PROBLEM SOLVING USING C PROGRAMMING**

**(2017 Admissions)**

Time : Three Hours

Maximum : 64 Marks

**Part A**

*Answer all questions.*

*Each question carries 1 mark.*

1. Name an entry controlled loop.
2. If the integer variables a and b are holding the values 11 and 4 respectively, the expression  $a \% b$  produces the result \_\_\_\_\_.
3. \_\_\_\_\_ are collection of elements of the same data type.
4. `char txt [20];` How many bytes are allocated by this definition ?
5. Every string ends with \_\_\_\_\_.
6. Which statement is used to skip a part of loop ?
7. Which statement is used for defining symbolic constants in C ?
8. Which is the conditional operator in C ?
9. Function declaration statements must end with a semicolon. (True/False)

(9 × 1 = 9 marks)

**Part B**

*Answer all questions.*

*Each question carries 2 marks.*

10. What are the different flow chart symbols ? Explain.
11. What are pointers ?
12. Write a program to check whether given number is divisible by 11 or not.
13. What are preprocessor directives ? Explain with example.
14. Differentiate structure and union.

(5 × 2 = 10 marks)

**Turn over**

**Part C**

*Answer any five questions.  
Each question carries 5 marks.*

15. Differentiate between local and global variables with examples.
16. Write a program to find the factorial of a number using recursion.
17. Explain the different looping statements in C.
18. Write a program to find largest and second largest element in an array.
19. What do you mean by precedence of operators ? Explain.
20. Explain the various arithmetic operations on pointers.
21. Write a C program to find transpose of a matrix.
22. What are the different string functions in C ? Explain.

(5 × 5 = 25 marks)

**Part D**

*Answer any two questions.  
Each question carries 10 marks.*

23. Briefly explain the different forms of if statement with examples.
24. Given a line of text. Write a C program to :
  - (a) Find the no. of words.
  - (b) Convert all word's first letter to uppercase.
25. Describe the various categories of functions with examples.

(2 × 10 = 20 marks)

D 43232

(Pages : 3)

Name.....

Reg. No.....

SECOND SEMESTER B.Sc. DEGREE EXAMINATION, MAY 2018

(CUCBCSS—UG)

BCS 2C 02—PROGRAMMING IN C

(2014 Admissions)

Time : Three Hours

Maximum : 64 Marks

Part A

Answer all questions.  
Each question carries 1 mark.

1. The smallest individual unit in C program are known as \_\_\_\_\_.
2. What is the output of the following code ?

```
#include<stdio.h>

int main()
{
int i=1;
printf("%d %d %d", ++i, i++, ++i);
return (0);
}
```

- (a) 224.
  - (b) 234.
  - (c) 334.
  - (d) 422.
3. In C all functions except main() can be called recursively (True/False).
  4. Which of the following cannot be checked in a switch case statement ?
    - (a) Character.
    - (b) Integer.
    - (c) Float.
    - (d) Enum.
  5. The variable used as a subscript in an array is popularly known as \_\_\_\_\_ variable.
  6. Which type of file cannot be opened using fopen() ?
    - (a) .txt.
    - (b) .bin.
    - (c) .c.
    - (d) None of these.

Turn over

7. `int a [5] = {1,2,3}` what is the value of `a[4]` ?
- (a) 3. (b) 1.  
(c) garbage value. (d) 0.
8. The control automatically passes to the first statement after the loop in :
- (a) Continue statement. (b) Break statement.  
(c) Switch statement. (d) If statement.
9. If the two strings are identical, then `strcmp()` function returns :
- (a) -1. (b) 1.  
(c) 0. (d) yes.

(9 × 1 = 9 marks)

### Part B

*Answer all questions.  
Each question carries 2 marks.*

10. Explain the basic data types in C.
11. Write a program in C to find the greatest of three numbers.
12. Explain about various storage classes available in C.
13. How does structure differ from an array ?
14. With the help of examples, explain the difference between break and continue statements in C.

(5 × 2 = 10 marks)

### Part C

*Answer any five questions.  
Each question carries 5 marks.*

15. Explain about various operators available in C.
16. Write the syntax and the use of the following functions in C :
- (a) `getchar()`.  
(b) `putchar()`.  
(c) `getch()`.  
(d) `gets()`.

17. Summarize the syntactic rules associated with *while* statement. Compare with *do-while* statement.
18. Write a program to display all the even numbers from 1 to 100 using for loop.
19. Define a structure data type named *Student* containing four data members *Name*, *Age*, *Sex* and *Marks* with appropriate data types. Write a program to read values to these data members and display the values.
20. Write a program to arrange a group of names in ascending order.
21. What is a Union ? How does a union differ from a structure ? For what kinds of applications are union useful ?
22. Write the syntax and use of any five file handling functions available in C.

(5 × 5 = 25 marks)

#### Part D

*Answer any two questions.*

*Each question carries 10 marks.*

23. How can a list of strings be stored in a two dimensional array ? Explain with syntax and example various string handling functions available in C.
24. (a) Write a program to find the biggest element in an array of elements using function.  
(b) Briefly describe various storage classes available in C.
25. Write a complete C program for reading student details (name, class and register number) from keyboard and writing it into a file.

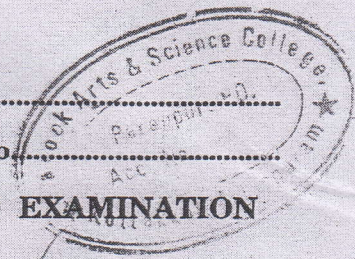
(2 × 10 = 20 marks)

C183

(Pages : 4)

Name.....

Reg. No.....



**SECOND SEMESTER B.Sc. DEGREE (SUPPLEMENTARY) EXAMINATION**

**MAY 2016**

(UG—CCSS)

Complementary Course

CS 2C 02—PROGRAMMING IN C

Time : Three Hours

Maximum : 30 Weightage

**Section A**

*Answer all questions.*

1. Which of the following is true for variable names in C ?

- (a) They can contain alphanumeric characters as well as special characters.
- (b) It is not an error to declare a variable to be one of the keywords (like goto, static).
- (c) Variable names cannot start with a digit.
- (d) Variable can be of any length.

2. What is the output of this C code ?

```
#include <stdio.h>
int main()
{
    int var = 010;
    printf("%d", var);
}
```

- (a) 2.
- (b) 8.
- (c) 9.
- (d) 10.

3. What is the output of the C code ?

```
# include <stdio.h>
Int main()
{
    Int i = 10;
    Int *p = &i;
    Printf("%d\n", *p++);
}
```

- (a) 10.
- (b) 11.
- (c) Garbage value.
- (d) Address of i.

**Turn over**

4. Which of the following is not a keyword in C language.
- (a) Void. (b) Volatile.  
(c) Sizeof. (d) Getchar.
5. Square is a library function (True/False).
6. \_\_\_\_\_ is the arithmetic operator with lowest precedence.
7. Elements of the array are accessed by \_\_\_\_\_.
8. What is the output of the program ?

```
#include<stdio.h>
```

```
int main()
```

```
{ int x=40;
```

```
{ int x=20;
```

```
printf("%d",x);}
```

```
printf("%d",x);
```

```
return 0;
```

- (a) 40,40. (b) 20,40.  
(c) 40,20. (d) error.
9. What is the result for the following declaration?

```
int array[] = {1, 2, 3, 4, 5};
```

```
printf( "%d", &array[4] - &array[0] ),
```

- (a) 4. (b) - 4.  
(c) 8. (d) - 8
10. A block of memory can be allocated using the function \_\_\_\_\_.
11. What is the meant by 'a' in the following operation ? `fp = fopen("Random.txt", "a");`
- (a) Attach. (b) Append.  
(c) Apprehend. (d) Add.

12. Getw() function is used to read \_\_\_\_\_.

(12 × ¼ = 3 weightage)

**Section B**

*Answer all questions.*

13. What is a variable and what is meant by the value of a variable ?
14. What are the character set in C ?
15. What are derived data types ? Give examples ?
16. What is the general form of conditional operator ? Give an example.
17. How values are assigned to members of structure ?
18. Distinguish between printf() and fprintf() ?
19. Which are the various jumping control statements used in C ?
20. Define a structure ?
21. What is meant by dynamic memory allocation ?

(9 × 1 = 9 weightage)

**Section C**

*Answer any five questions.*

22. Write any *three* control structures with examples.
23. Write a C program to arrange a set of numbers in descending order.
24. Using suitable example explain actual and formal arguments in C.
25. Write the syntax of for loop? Explain how the loop is get executed with an example.
26. Write a program to compute the sum of digits of a given integer number ?
27. Write a program to count the number of words in a string ?
28. Write a program to read data from keyboard and write it to a file called INPUT ?

(5 × 2 = 10 weightage)

**Turn over**

## Section D

*Answer any two questions.*

29. Explain different types of operators available in C language with suitable examples.
30. (A) Write a program to merge two sorted array in to a single sorted array in ascending order.  
(B) Write a function to remove duplicates from an ordered array.
31. Explain the significance of user defined functions with example.

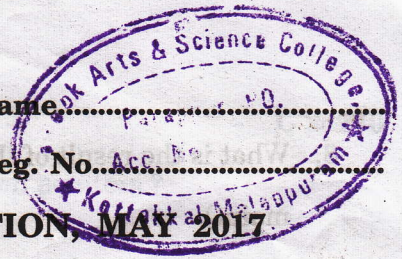
(2 × 4 = 8 weightage)

C 24770

(Pages : 3)

Name.....

Reg. No.....



SECOND SEMESTER B.Sc. DEGREE EXAMINATION, MAY 2017

(CUCBCSS—UG)

Complementary Course

BCS 2C 02—PROGRAMMING IN C

Time : Three Hours

Maximum : 64 Marks

Part A

Answer all the questions.

Each question carries 1 mark.

- 1. What are keywords ?
- 2.  $a=a/n+1$ . The equivalent statement with shorthand operator is  $/=$ .
- 3. What will be the output of the following program

```
main()
{
  int a,b;
  a=10; b=20;
  printf("%d ", a,b);
}
```

*Error*

- 4. Which is the arithmetic operator with lowest precedence ?
- 5. Elements of the array are accessed by Identify
- 6. What is the result for the following declaration ?

```
int array[] = { 1, 2, 3, 4, 5 };
printf("%d", &array[4] - &array[0]);
```

*a[4] - a[0]  
5 - 1 = 4*

- 7. If there is any error while opening a file, fopen will return NULL.

Turn over

8. What is the result of the following code ?

```
main()
{
    int a[] = {1,2,9,8,6,3,5,7,8,9};
    int *p=a+1;
    int *q= a+6;
    printf("\n%d", q-p);
}
```

Ans.  
↓  
6-1 = 5

9. Array passed as an argument to a function is interpreted as Address of the first element (of the array)  
(9 × 1 = 9 marks)

### Part B

Answer all the questions.

Each question carries 2 marks.

10. What is the purpose of a type declaration ?
11. Describe two different forms of if-else statement. How do they differ ?
12. Write a program to print the first 10 natural numbers.
13. How values of an array is passed to a function ?
14. Differentiate between structure and union.

(5 × 2 = 10 marks)

### Part C

Answer any five questions.

Each question carries 5 marks.

15. What is a data type ? Explain the fundamental data types available in C with suitable examples.
16. What is meant by function prototype ? Write a function program to find the factorial of a number.
17. Define storage class. Explain various storage classes in C with examples.
18. Write a program to arrange the numbers of an array in ascending order.
19. Write a program to find the sum of digits of a number into a single digit.

20. What are pointers ? Explain how to perform arithmetic operations on pointers ?
21. Explain the various modes of fopen().
22. Write a program to find the product of two matrices.

(5 × 5 = 25 marks)

**Part D**

*Answer any two questions.*

*Each question carries 10 marks.*

23. What is a string ? Explain various string handling functions in C with suitable examples.
24. (a) Write a program to read a line of text and output the number of words and characters ?  
(b) Write a program to find prime numbers between 50 and 500 ?
25. Write a program to read a list of words from a file, sort the words in alphabetical order and display them one word per line. Also give the total number of words in the list ?

(2 × 10 = 20 marks)

C 25938

(Pages : 4 )



Reg. No.....

**SECOND SEMESTER B.Sc. DEGREE (SUPPLEMENTARY)  
EXAMINATION, APRIL 2017**

(UG—CCSS)

Complementary Course

CS 2C 02—PROGRAMMING IN C

Time : Three Hours

Maximum : 30 Weightage

**Section A**

*Answer all questions.  
Each question carries ¼ weightage.*

1. What will be the output of the following C code ?

```
main()
{
int a = 10;
int b = 15;
int x;
x = (a > b) ? a : b;
printf("%d", x);
}
```

2. What will be the output of the following program ?

```
main ( )
{
int n=125, sum=0,re;
while(n>0)
{
re=n%10;
sum+=re;
n/=10;
}
printf("sum is=%d",sum);
}
```

Turn over

3. Write down the correct output of the following code :—

```
int z, x=5, y= -10, a = 4, b=2;
```

```
z = x+---y * b/a;
```

4. What will be output of following program ?

```
int main () {
```

```
int i = 3;
```

```
int *j;
```

```
int **k;
```

```
j=&i;
```

```
k=&j;
```

```
printf("You You You ",i,*j,**k);
```

```
return 0;
```

```
}
```

5. Which loop control statement in C is called as entry control loop ?
6. What is the use of % operator in C ?
7. What is the range of *char* data type in a compiler in which size of *char* is one byte ?
8. Which string function in C is used for combining two strings together ?
9. Write down the function name which frees previously allocated memory space in C ?
10. Which C built-in function is used for moving the file pointer position to the beginning of the file ?
11. What will be output of following C code ?

```
main()
```

```
{
```

```
struct india {
```

```
char c;
```

```
float d;
```

```
};
```

```
struct world
```

```
{
```

```

int a[3];
char b;
struct india orissa;
}
struct world st = {{1,2,3}, 'P', 'q',1.4};
printf("%d\t%c\t%c\t%f",st.a[1],st.b,st.orissa.c,st.orissa.d);
}

```

12. Name the header file associated with *pow()* function in C.

(12 × ¼ = 3 weightage)

### Section B

*Answer all questions.*

*Each question carries 1 weightage.*

13. Write down the structure of a C program.
14. Distinguish between static and register variable.
15. What is the difference between *main()* and *void main(void)* ?
16. How will you define a pointer variable in C ?
17. What is the use of *enum* data type in C ?
18. What is recursion ?
19. What is the use of *feof()* function ?
20. What is static variable ?
21. List the different dynamic memory allocation functions in C.

(9 × 1 = 9 weightage)

### Section C

*Answer any five questions.*

*Each question carries 2 weightage.*

22. Write a C program to compute  $n!$ .
23. Using suitable example explain actual and formal arguments in C.
24. Explain the syntax and function of *do...while* construct.
25. What are the different storage classes in C ? Explain.
26. Differentiate *structure* and *union*.

Turn over

27. Explain any two file handling functions in C.
28. Write a note on command line arguments.

(5 × 2 = 10 weightage)

#### Section D

*Answer any two questions.  
Each question carries 4 weightage.*

29. Write a C program to sort  $n$  numbers using user defined function.
30. Write a C program to compare two strings without using built-in function.
31. Write a C program to read a positive integer and determine its binary equivalent.

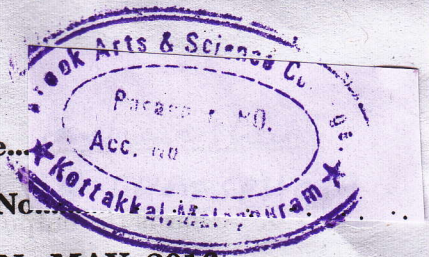
(2 × 4 = 8 weightage)

C 5629

(Pages : 3)

Name...

Reg. No...



**SECOND SEMESTER B.Sc. DEGREE EXAMINATION, MAY 2016**

(CUCBCSS—UG)

Complementary Course

BCS 2C 02—PROGRAMMING IN C

Time : Three Hours

Maximum : 64 Marks

**Part A**

*Answer all the questions.*

*Each question carries 1 mark.*

1. Define integer constant.
2. During modulo division the sign of the result is always the sign of \_\_\_\_\_.
3. What will be the result of the following program ?

```
main()
{
    int a,b;
    a=2; b=3;
    scanf("%f %f",&a,&b);
    printf("%d %d",a,b);
}
```

4. What is the associativity of the conditional operator ?
5. The process of allocating memory at run time is called \_\_\_\_\_.

**Turn over**

6. What is the output of the following function :

```
int f1 (int a, int b)
```

```
{
```

```
return (f2(20));
```

```
}
```

```
int f2(int a)
```

```
{
```

```
return(a*a);
```

```
}
```

7. A block of memory can be allocated using the function \_\_\_\_\_.

8. If the two strings are identical, then strcmp() function returns.  $s_1 = s_2$ .

9. What does the file type "r+" means ?

(9 × 1 = 9 marks)

### Part B

Answer all the questions.

Each question carries 2 marks.

10. What is a character constant ? How it differ from numeric type constants ?

11. How can the getchar() function be used to read multicharacter strings ?

12. Write a program to find the biggest of three numbers.

13. Define pointer variables.

14. Write the syntax of fprintf() and fscanf() functions.

(5 × 2 = 10 marks)

1) ~~local~~ Auto  
2) Static  
3) Register  
4) External

Recursive for a process by calls repeatedly  
which a for for has been satisfied  
until some specified has been satisfied  
The process one for super.

## Part C

Answer any **five** questions.  
Each question carries 5 marks.

15. Explain the difference between getchar() and gets(), putchar() and puts() functions.
16. Explain call by value and call by reference with suitable examples.
17. Write the syntactic rule associated with the 'for' statement?
18. Write a function that calculate and display the roots of the quadratic equation :  
 $ax^2 + bx + c = 0.$
19. How the indirection operator can be used to access a multidimensional array element?
20. Write a program to determine whether a number is prime or not using break statement.
21. Write a loop that will examine each character in a character type array and determine how many characters are vowels and how many are consonants.
22. What is meant by opening a data file? How is this accomplished?

(5 × 5 = 25 marks)

## Part D

Answer any **two** questions.  
Each question carries 10 marks.

23. Define branching. Explain various branching and looping statements available in C with examples.
24. (a) Write a recursive function to generate and print first n Fibonacci numbers.  
(b) What are pointer expressions? Write a program using pointers to compute the sum of all elements stored in an array.
25. What is a file? Why is it needed? Explain various operations that can be carried out on files.

(2 × 10 = 20 marks)

Computations  
in which  
each action  
is stated  
in terms of  
a previous  
result

C 82162

(Pages : 3)

Name.....

Reg. No.....

**SECOND SEMESTER B.Sc. DEGREE (SUPPLEMENTARY/IMPROVEMENT)  
EXAMINATION, APRIL/MAY 2015**

(UG—CCSS)

Complementary Course—Computer Science

CS 2C 02—PROGRAMMING IN 'C'

Time : Three Hours

Maximum : 30 Weightage

**Section A**

*Answer all questions.*

1. What will be the output of the following C code ?

```
main ()
{
    int a = 10 ;
    int b = 15 ;
    int x ;
    x = (a > b) ? a : b ;
    printf ("%d", x) ;
}
```

2. What will be the output of the below C program ?

```
main ()
{
    int i = 10 ;
    printf ("value = %d", i ++);
    printf ("value = %d", i) ;
}
```

3. Write down the correct output of the following code

```
int z, x = 5, y = -10, a = 4, b = 2 ;
z = x ++ -- y * b/a ;
```

Turn over

4. What will be output when you will execute following c code ?

```
main ()
{
    const int *p ;
    int a = 10 ;
    p = &a ;
    printf ("%d", *p) ;
    return 0 ;
}
```

5. What is the range of *char* data type in a compiler in which size of *char* is one byte ?

6. What is the use of % operator in C ?

7. Which C statement is used to skip a part of the statements in a loop ?

8. Which loop control statement is called as exit control loop ?

9. What will be output of following c code ?

```
main()
{
    struct India
    {
        char c ;
        float d ;
    };
    struct world
    {
        int a[3] ;
        char b ;
        struct india orissa ;
    };
    struct world st = {{1, 2, 3}, 'P', 'q', 1.4} ;
    printf ("%d\t%c\t%c\t%f", st.a[1], st.b, st.orissa.c, st.orissa.d);
}
```

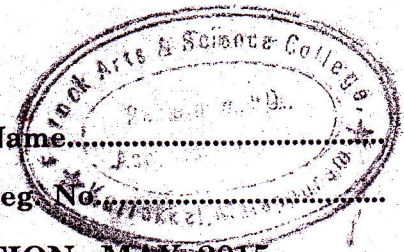
10. Write down the C statement for declaring a matrix of size  $5 \times 5$ .

C 83008

(Pages : 2)

Name.....

Reg. No.....



SECOND SEMESTER B.Sc. DEGREE EXAMINATION, MAY 2015

(CUCBCSS—UG)

Complementary Course—Computer Science

BCS 2C 02—PROGRAMMING IN C

Time : Three Hours

Maximum : 64 Marks

Part A

Answer all the questions.  
Each question carries 1 mark.

1. What are identifiers ?
2. The smallest individual unit in C program are known as tokens.
3. Find the error in the programme.

```
f(int a,int b)
{
int a;
a = 20 ; return a;
}
```

4. Find the output of the following program :

```
main ( )
{
i = 20 ; k = 0;
for (j = 1 ; j < i ; j=1+4*(i/j))
{k += j < 10 ? 4 : 3 ;
}
print f ("%d",k) ;
```

5. How many actual arguments shall be used for a "normal function call" for each formal argument ?
6. Size of a union is determined by size of the largest character string (column).
7. What is 'a' in the following operation ?  
fp = fopen("Random.txt", "a"); a - open an existing file for append
8. If the two strings are identical, then strcmp ( ) function returns \_\_\_\_\_.
9. What does \*p++ points to ?

(9 × 1 = 9 marks)

Turn over

**Part B**

*Answer all the questions.  
Each question carries 2 marks.*

10. What is a string constant ? How do string constant differ from character constant ?
11. What is the purpose of do-while statement ? How does it differ from while statement ?
12. What are the two principal components of a function definition ?
- ③ 13. What is the purpose of register storage class ?
14. Write a program to determine whether a number is odd or even.

(5 × 2 = 10 marks)

**Part C**

*Answer any five questions.  
Each question carries 5 marks.*

15. What are arrays ? How array elements are passed to a function ?
16. Write a program to print all prime numbers from 1 to 300 using nested loops.
17. Write a program to calculate the sum of every third integer beginning with  $i = 2$  using for statement.
18. Differentiate between exit controlled loop and entry controlled loop with suitable examples.
19. What is a recursive function ? Write a recursive function to find the factorial of a number.
20. Write a program that will determine the first n Fibonacci numbers.
21. Define a structure. How values are assigned to structure variables ?
22. What is meant by Dynamic memory allocation ? Explain various memory allocation functions ?

(5 × 5 = 25 marks)

**Part D**

*Answer any two questions.  
Each question carries 10 marks.*

23. (a) Write a program to merge two sorted array into a single sorted array in ascending order.  
(b) Write a function to remove duplicates from an ordered array.
24. Explain different types of operators available in C language with suitable examples ?
25. Define a structure called *cricket* that will describe the following information :

Player name , team name , batting average.

Using *cricket* declare an array player with 50 elements and write a program to read the information about all the 50 players and print a team-wise list containing names of players with their batting average ?

(2 × 10 = 20 marks)



SECOND SEMESTER B.Sc. DEGREE EXAMINATION, MAY 2014

(U.G.—CCSS)

Complementary Course—Computer Science

CS 2C 02—PROGRAMMING IN 'C'

Time : Three Hours

Maximum : 30 Weightage

Section A

Answer all questions.

1. Which of the following is not a valid C variable name ?

- (a) int number.
- (b) float rate.
- (c) int variable\_count.
- (d) int \$main.

2. What is the output of this C code ?

```
# include < stdio. h >
# define a 10
int main ()
{
  const int a = 5 ;
  printf (" a = % d \n", a);
}
```

- (a) a = 5.
- (b) a = 10.
- (c) Compilation error.
- (d) Runtime error.

3. What is the output of the following C code ?

```
# include < stdio. h >
int main ()
{ int i = 0 ;
  int x = i ++, y = ++ i ;
  printf (" %d %d \n", x, y);
  return 0 ;
}
```

- (a) 0, 2.
- (b) 0, 1.
- (c) 1, 2.
- (d) undefined.

*Handwritten notes:*  
 $x = 0$   
 $y = 1$   
 $x = 1$   
 $y = 2$

Turn over

4. Which of the following cannot be used as LHS of the expression in for (exp 1 ; exp 2 ; exp 3) ?
- (a) Variable. (b) Function.  
(c) Typedef. (d) Macros.
5. How many actual arguments shall be used for a "normal function call" for each formal argument ?
- (a) 2. (b) 3.  
(c) 0. (d) 1.
6. String is a data type (TRUE/FALSE).
7. Which of the following is not a storage class in C ?
- (a) Auto. (b) Struct.  
(c) Extern. (d) Static.
8. What is the associativity of the conditional operator ?
- (a) Left to Right. (b) Right to Left.  
(c) Top to Bottom. (d) Bottom to Top.
9. What is the output of the following function ?
- ```
int f1 (int a , int b)
{
    return (f2 (20)) ;
}

int f2 (int a)
{
    return (a* a);
}
```
10. Size of a union is determined by size of the \_\_\_\_\_.
- (a) First member in the union. (b) Last member in the union.  
(c) Biggest member in the union. (d) Sum of the sizes of all members.

11. The process of allocating memory at run time is called \_\_\_\_\_.
12. Which type of files can't be opened using fopen () ?
- (a) .txt. (b) .bin.  
(c) .c. (d) None of the mentioned.

(12 × ¼ = 3 weightage)

### Section B

Answer all questions.

13. What is an identifier ?
14. Define an array. How arrays can be declared ?
15. What is purpose of register storage class ?
16. Define a pointer.
17. What is precedence of operators ?
18. Distinguish between break and continue statement in C.
19. What is union ?
20. Define recursion.
21. What are formal arguments ?

(9 × 1 = 9 weightage)

### Section C

Answer any five questions.

22. Explain the structure of a C program.
23. Explain the working of do-while with an example.
24. Differentiate between a variable and a keyword.
25. Explain the syntax of else if ladder with suitable examples.
26. Write a program to reverse a number.
27. Write a program to find the sum of two matrices.
28. What is structure variable? How a structure variable can be accessed using pointer ?

(5 × 2 = 10 weightage)

Turn over

## Section D

Answer any two questions.

- P
29. (a) Write a program to merge two sorted array in to a single sorted array in ascending order.
- P (b) Write a function to remove duplicates from an ordered array.
30. What are strings ? How they are represented in memory ? Write a program to reverse a string.
31. What are sequential files ? Explain various file handling functions with suitable examples.

(2 × 4 = 8 weightage)

C 41845

(Pages : 3)

Name.....

Reg. No.....

SECOND SEMESTER B.Sc. DEGREE EXAMINATION, APRIL/MAY 2013

(CCSS)

Computer Science

CS 2C 02—PROGRAMMING IN C

Time : Three Hours

Maximum : 30 Weightage

Section A

Answer all questions

1. What will be the output of the following programe ?

```
main ()
{
    int n=125, sum=0, re;
    while(n>0)
    {
        re=n%10;
        sum+=re;
        n/=10;
    }
    printf("sum is=%d",sum);
}
```

2. What will be the output of the following C program segment for the values of  $x$  and  $y$  if  $n$  assumes a value of (a) 1 and (b) 0.

```
int x =1;
int y = 1;
if(n>0)
    x = x + 1;
    y = y - 1;
printf("%d%d", x,y);
```

Turn over

3. What will be the output of the following program :

```
main()
{
    int x=10;
    int y = 20;
    int p,q;
    p = prod(x,y);
    q = prod(p,prod(x,2));
    printf("%d%d\n",p,q);
}

prod(a,b)
int a,b;
{
    return(a*b);
}
```

4. Give the syntax of ternary operator in C.
5. Which loop control statement in C is called as entry control loop ?
6. Write down the function name which frees previously allocated memory space in C ?
7. What will be output of following program ?

```
int main(){
    int i = 3;
    int *j;
    int **k;
    j=&i;
    k=&j;
    printf("%u %u %u",i,*j,**k);
    return 0;
}
```

8. What is the range of values that can be represented by a variable of *signed int* in a compiler in which size of *int* is two byte ?
9. Which statement is used in C for by passing a loop construct ?
10. Which is the terminator symbol in C ?

11. Write down the function name which frees previously allocated memory space in C ?
12. Write down the C code for declaring an array of size 10.

(12 × ¼ = 3 weightage)

### Section B

Answer **all** questions

13. Give any *four* relational operators in C ?
14. Distinguish between *break* and *continue* statement in C.
15. List any four string handling functions in C.
16. How will you define a pointer variable in C ?
17. Explain the use of *fseek()* function ?
18. What is the scope of a local variable ?
19. Differentiate *structure* and *union*.
20. What is the use of *enum* data type in C ?
21. Explain syntax of *calloc()* function in C.

(9 × 1 = 9 weightage)

### Section C

Answer any **five** questions.

22. Explain the fundamental data types in C.
23. Explain *else if* ladder using suitable example.
24. What is recursion? Explain with an example.
25. Using suitable example explain actual and formal arguments in C.
26. What is *structure* variable ? How a *structure* variable can be accessed using *pointer* ?
27. Write a note on command line arguments.
28. Discuss the different storage classes in C.

(5 × 2 = 10 weightage)

### Section D

Answer any **two** questions.

29. Write a C program to sort N numbers in descending order.
30. Write a C program to compute  $x^x$  where x is an integer number accepted as input.
31. Write a C program to read two matrices of suitable order and find its product.

(2 × 4 = 8 weightage)

**SECOND SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2012**

(CCSS)

Computer Science—Complementary Course

CM CA 02—PROGRAMMING INC

Time : Three Hours.

Maximum : 30 Weightage

**Section I**

Answer all twelve questions.

1. State whether true or false : The Predecessor of C was known as B.
2. The for loop in C is known as :
- (a) Exit controlled loop.                      (b) Entry controlled loop.
- (c) Case controlled loop.                      (d) None.
3. Suppose  $p$  is an integer variables already declared in a C program. Is the following statement valid ? Yes/No :

$p += 5;$

4. All external and static variables are initialized to \_\_\_\_\_.
- (a) 1.                                              (b) 0.
- (c) -1.                                              (d) None of these.
5. Is *default* a valid key world in C as per ANSI standards ? yes/No.
6. What is the output of the following statement in C program ?

if (0) printf("zero");

else printf("non-zero");

- (a) zero.                                              (b) non-zero
- (c) true.                                              (d) none of these.

7. Is the a valid statement is C ? Yes/no :

for( ; ; );

8. State whether true or false : + *define* statement should not end with a semicolon.

9. If a, b, c and d are integer variables already declared, is the following statement valid as per ANSI C ? Yes/no :

$d = a - b; c = d - b;$

Turn over

10. Suppose we have an array `arr[4]` declared in C which has item {10, 11, 12, 13} and if we try to execute `printf("%d", arr[4])`, what will be the output ?
- (a) error. (b) 13.  
(c) 0. (d) some garbage value.
11. State whether true or false : In C, `goto` requires a label in order to identify the place where the branch is to be made.
12. A group of related homogeneous data items that share a common name is known as :
- (a) Pointer. (b) array.  
(c) structure. (d) none of these.

(12 × ¼ = 3 weightage)

### Section II

Answer all nine questions.

13. What is a `printf()` in C ?
14. Explain the syntax and usage of `for` loop with example.
15. Explain how `%` operator is used in C.
16. What is Recursion ?
17. What is `fprintf()` ? How it is used ?
18. Which are the *relational* operators in C ?
19. What is the use of *continue* in C ?
20. Explain the use of *if* in C program.
21. Write a function to accept three numbers and returns the largest.

(9 × 1 = 9 weightage)

### Section III

Answer any five questions from seven.

22. Explain *switch-case* in C program.
23. Explain *ELSE IF* construct in C with example.
24. Write a program to find the smallest number within the given 2-D array of integers.
25. Write a program to find the number of characters in a given string without using `strlen()`.
26. Explain the concept *call by value* in user defined functions in C.
27. Explain the file operation function `fscanf()` with example.
28. Explain any *two* arithmetic operators in C with example.

(5 × 2 = 10 weightage)

**Section IV**

*Answer any two questions from three.*

29. Explain different data types used in C with examples.
30. Discuss the Relational and logical operators in C programming language with examples.
31. Explain the structure and different section of C program with an example.

(2 × 4 = 8 weightage)

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(Pages 2)

Name.....

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SECOND SEMESTER B.Sc. DEGREE EXAMINATION, MAY 2011

Computer Science—Complementary Course

CMCA 02—PROGRAMMING IN C

Time : Three Hours

Maximum : 30 Weightage

Section A

Answer all questions.

1. Local variable which exists and retains its value even after the control is transferred to the calling function belongs to \_\_\_\_\_ storage class.
2. The range of values that can be represented by a variable of type char is \_\_\_\_\_.
3. The \_\_\_\_\_ is a compile time operator and, when used when an operand, it returns the number of bytes the operand occupies.
4. What is the value of y, given  $x = 6$  and  $y = (x > 10 ? (2 * x + 5) : (3 * x / 2))$ .
5. The \_\_\_\_\_ statement is used to skip a part of the statements in a loop.
6. The following statement block :

sum = 0 ;

i = 1 ;

for ( ; i <= 10) ;

sum += i ;

i++ ;

- (a) is valid and find the sum  $1 + 2 + \dots + 10$ .
  - (b) will result in endless loop.
  - (c) The for loop is incorrect.
7. Which of the following declaration is wrong ?
    - (a) `int x [ ] [2] = {1, 2, 3, 4}.`
    - (b) `int x [2] [2] = {1, 2, 3, 4}.`
    - (c) `int x [2] [2] = {(1, 2), (3, 4)}.`
    - (d) `int x [ ] [2] = {(1, 2), (3, 4)}.`
  8. The process of combining two strings together is called \_\_\_\_\_.
  9. Pick incorrect statement for the following \_\_\_\_\_
    - (a) C supports recursion.
    - (b) A function returns float value by default.
    - (c) One a function is defined, it can be called anywhere.

Turn over

10. In \_\_\_\_\_ values of actual parameters are copied to the variables.
11. The \_\_\_\_\_ allocates a block of memory of requested size and returns a pointer to the first byte of the block.
12. The function \_\_\_\_\_ returns the current position of the file pointer.

(12 × ¼ = 3 weightage)

### Section B

Answer all questions.

13. List the logical operators in C.
14. What is a library function?
15. Give the syntax of 'do while' and 'while'.
16. Give any two rules to be observed when we write nested for loops.
17. Write any four string functions.
18. Define structure.
19. Give any two advantages of user defined functions.
20. What is a Pointer?
21. What is a data file?

(9 × 1 = 9 weightage)

### Section C

Answer any five questions.

22. Write a C program to read values of  $u$ ,  $v$  and  $w$  and print the results of the expression :

$$\frac{\sqrt{(u+v)^2}}{w(u-v)}$$

23. Write a program to print the following using for loops :-

1

1 2 1

1 2 3 2 1

1 2 3 4 3 2 1

24. With suitable example, explain switch statement.
25. Write a function to reverse and print a given string.
26. Write a program to read a square matrix and print its transpose.

27. With suitable example(s) explain formal and actual parameters.
28. Write note on dynamic memory allocation.

(5 × 2 = 10 weightage)

#### Section D

*Answer any two questions.*

29. With suitable examples, explain : (i) if statements ; (ii) file handling function.
30. Write a program to read a list of  $n$  integers into a one dimensional array and print the sum of all even numbers. Use pointers to access array elements.
31. Give a detailed account of "structure" and "union".

(2 × 4 = 8 weightage)

## SECOND SEMESTER B.Sc. DEGREE EXAMINATION, MAY 2010

(C.C.S.S. Programme)

Computer Science—Complementary Course

CMCA02—PROGRAMMING IN C

Time : Three Hours

Maximum : 30 Weightage

## Section A

Answer all questions.

1. final tells the compiler that the value of the variable must not be modified by the program.

2. Given :

 $x = 20; y = 10; z = 5;$  $y = ++x; y -= 10;$  $z = y++;$ What will be the value of  $x$ ,  $y$  and  $z$  after the execution of the above statements ?(a)  $x = 20, y = 11, z = 12$ (b)  $x = 21, y = 11, z = 11$ (c)  $x = 20, y = 12, z = 12$ (d)  $x = 21, y = 12, z = 11$ 3. The operator sizeof cannot be used with real operands.4. switch is a multi-way decision statement.5. An early exiting from a loop can be accomplished by using the break statement.6. `int s = 0;``for (i = 0; i < 5; i++)``for (j = i + 1; j < 5; j++)``printf("%d", j);`

Write the output of the above statements.

7. A union is a collection of data items under one name in which the items share the same storage.

Turn over

8. Pick the right statement :

- (a) We can pass one function as argument to another function.
- (b) A function can return more than one type of values.
- (c) there is no difference between malloc ( ) and calloc ( ).
- (d) We cannot have a pointer to pointer to an integer.

9. \_\_\_\_\_ function is used to compare two strings.

10. The variables declared within a function are by default \_\_\_\_\_ storage class.

11. Which of the following operation is illegal :-

- (a) Addition of two pointers.
- (b) Adding an integer value to a pointer.
- (c) Subtraction of an integer value from a pointer.
- (d) Subtraction of one pointer from other pointer, if both points to the same array.

12. The file opening mode \_\_\_\_\_ is used to open a text file for both reading and writing.

(12 × 1/4 = 3 weightage)

### Section B

Answer all questions.

13. What are the symbolic constants ?

14. List the arithmetic operators and give their precedence.

15. List two rules related to the construction of nested for loops.

16. Give the syntax of else if ladder.

17. Define union.

18. Define an array.

19. Give any two advantages of user defined functions.

20. What is a pointer ?

21. What is a data file ?

(9 × 1 = 9 weightage)

### Section C

Answer any five questions.

22. Write a program to accept a number and display whether it is divisible by 5 only or 6 only or both 5 and 6.

23. Write a program to display the following using while loops :—

```

      1
    2 0 2
  3 0 0 0 3
4 0 0 0 0 0 4

```

24. With suitable example, explain "for loop".
25. Write a function to find the length of a string.
26. Write a program to read a square matrix and print the sum of its diagonal elements.
27. Discuss "storage classes".
28. Write notes on "sequential data files".

(5 × 2 = 10 weightage)

### Section D

Answer any two questions.

29. Give a detailed account of pointers, operations on pointers and dynamic memory allocation.
30. Give a detailed account of user defined function.
31. Write a function to add two matrices. Write appropriate main function to read two matrices and them and print the result.

(2 × 4 = 8 weightage)

*kind max (max(xm), 2);*