C 4364-B (Pages : 2) Name.....

Reg. No.....

SECOND SEMESTER (CBCSS—UG) DEGREE EXAMINATION
APRIL 2021

Computer Science

BCSDS 2C 02—INTRODUCTION TO DATA SCIENCE

Time : Two Hours Maximum : 60 Marks

Section A (Short Answer Type Questions)

Answer at least **eight** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 24.

1. Give any two characteristics of "Big Data".
2. Explain "Datafication".
3. Why is EDA a significant component of Data Science ?
4. Identify the significance of K Means algorithm in Data Science.
5. What is regression analysis ?
6. What do you mean by data wrangling ?
7. What is a Wrapper ?
8. Differentiate feature generation and feature selection.
9. What is a recommendation system ?
10. Illustrate social network graph with an example.
11. Justify the use of data visualization tools in data science.
12. List any *four* data visualization tools.

(8 × 3 = 24 marks)

Section B (Short Essay Type Questions)

Answer at least **five** *questions.*
Each question carries 5 *marks.*
All questions can be attended.
Overall Ceiling 25.

13. Discuss any *two* sampling techniques with suitable examples.
14. Summarize the philosophy of EDA.
15. Discuss the limitations of K-NN algorithm in spam filtering.
16. Outline the approaches used in feature generation.
17. Summarize singular value decomposition.
18. Explain clustering of graphs.
19. Discuss ethical issues in data science.

(5 × 5 = 25 marks)

Section C (Essay Type Questions)

Answer any **one** *question.*
The question carries 11 *marks.*

20. Explain K-NN algorithm with an example.
21. Discuss the construction and working of decision trees.

(1 × 11 = 11 marks)

C 4364 (Pages : 2) Name.....

Reg. No.....

SECOND SEMESTER (CBCSS—UG) DEGREE EXAMINATION, APRIL 2021

Computer Science

BCS 2C 02—FUNDAMENTALS OF SYSTEM SOFTWARE, NETWORK AND DBMS

Time : Two Hours Maximum : 60 Marks

Section A (Short Answer Type Questions)

Answer at least **eight** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 24.

1. What is assembly language ?
2. What are high level languages ? List any two commonly used high level languages.
3. What is system software ?
4. What is a topology ?
5. What is the OSI model ? List its layers.
6. Explain Fiber Optic Cables with its advantages.
7. Define DBMS.
8. What are attributes in dbms ?
9. Define primary key.
10. Write syntax of create command in SQL with example.
11. What are the heading tags in html ?
12. What is HTML ?

(8 × 3 = 24 marks)

Section B (Short Essay Type Questions)

Answer at least **five** *questions.*
Each question carries 5 *marks.*
All questions can be attended.
Overall Ceiling 25.

13. What is the difference between compiler and interpreter ?
14. Explain unguided communication media.
15. Explain LAN, MAN, WAN.

16. Differentiate delete and drop command in SQL.

17. Explain structure of a database.

18. Write a note on different lists in html.

19. How insert an image in webpage using html tag ?

(5 × 5 = 25 marks)

Section C (Essay Type Questions)

Answer any **one** *question.*
The question carries 11 *marks.*

20. What is operating system ? Briefly explain functions and types of operating system.

21. Write a note on different data models in dbms.

(1 × 11 = 11 marks)

C 4363 (Pages : 2) Name.....

Reg. No.....

SECOND SEMESTER (CBCSS—UG) DEGREE EXAMINATION
APRIL 2021

Computer Science

BCS 2B 02—PROBLEM SOLVING USING C

Time : Two Hours Maximum : 60 Marks

Section A (Short Answer Type Questions)

Answer at least **eight** *questions.*
Each question carries 3 marks.
All questions can be attended.
Overall Ceiling 24.

1. Define Keywords and Identifiers.
2. What are the fundamental data types in c ?
3. Differentiate between implicit and explicit type conversions.
4. What are the different relational operators ?
5. Distinguish between ***getchar()*** and ***scanf()*** functions.
6. What is a conditional operator ? Give an example.
7. What is a multidimensional array ? How is it declared ?
8. How is a string variable declared and initialized.
9. Explain the basic concept of pointers.
10. Describe nesting of loops.
11. Explain the use of ***ftell*** and ***fseek*** functions.
12. What is function recursion ?

(8 × 3 = 24 marks)

Section B (Short Essay Type Questions)

Answer at least **five** *questions.*
Each question carries 5 *marks.*
All questions can be attended.
Overall Ceiling 25.

13. What is a Constant ? What are the different types of constants in C. Give examples ?
14. Explain different kinds of operators in C with examples.
15. Write a C program to compute the sum of digits of a number.
16. Explain any five string handling functions with examples.
17. What are a structure and a union ? How are they different ?
18. Explain about looping statements in C.
19. What are the storage classes in C. Explain with examples ?

(5 × 5 = 25 marks)

Section C (Essay Type Questions)

Answer any **one** *question.*
The question carries 11 *marks.*

20. What are the categories of functions ? Explain with examples.
21. Write a C program to read a text and count the occurrence of a particular word.

(1 × 11 = 11 marks)

C 4124 (Pages : 3) Name.....

Reg. No.....

SECOND SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION APRIL 2021

Computer Science

BCS 2C 02—FUNDAMENTALS OF SYSTEM SOFTWARE, NETWORK AND DBMS

(2017 Admissions)

Time : Three Hours Maximum : 64 Marks

Part A

Answer **all** *questions.*

Each question carries 1 *mark.*

1. A program that converts assembly language into machine code.

   (a) Interpreter. (b) Compiler.

   (c) Assembler. (d) Operating system.

2. ——— acts a link between the software and the hardware.

   (a) Interpreter. (b) Compiler.

   (c) Assembler. (d) Operating system.

3. ——— network topology is also known as Hierarchical Topology.

4. ——— uses either Ethernet or Token-ring technology.

   (a) LAN. (b) WAN.

   (c) MAN. (d) None of the above.

5. ——— defines the data elements and the relationships between the data elements.

6. ——— model represents the database as a collection of tables.

   (a) Network. (b) Relational.

   (c) Entity Relationship. (d) None of the above.

7. SQL is case insensitive.

   (a) TRUE.

   (b) FALSE.

8. Expand WYSIWYG.

9. The ——— element is the root element of an HTML page.

(9 × 1 = 9 marks)

Part B

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

10. Differentiate real time and distributed OS.

11. What are the different Network topologies ? Name them.

12. Define data model.

13. Name the different DDL commands.

14. What is the largest and smallest tag in HTML ?

(5 × 2 = 10 marks)

Part C

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

15. Explain batch and multiprogramming operating system.

16. What are language processors ? Explain any *two*.

17. Discuss MAN with diagram.

18. Explain any *one* guided communication media.

19. Explain any *two* data model used in DBMS.

20. Discuss Relational model with an example.

21. Compare UPDATE and ALTER SQL commands with example.

22. How do you write an HTML document ? Explain with an example.

(5 × 5 = 25 marks)

Part D

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

23. Discuss the OSI model of network architecture with functions of each layer.

24. What is a computer network ? Explain the different types of networks available.

25. Write short notes on :

    (a) Network model with its advantages.

    (b) Hierarchical model with its advantages.

(2 × 10 = 20 marks)

C 4123 (Pages : 3) Name.....

Reg. No.....

SECOND SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION, APRIL 2021

Computer Science

BCS 2C 02—PROGRAMMING IN C

(2014 Admissions)

Time : Three Hours Maximum : 64 Marks

Part A

Answer **all** *questions.*
All question carries 1 *mark.*

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

   A) int number ; B) float rate ;

   C) char char_name ; D) int $mynumber ;

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

```
int main()
{
int i = –5 ;
int k = i % 4 ;
printf("%d\n", k) ;
return 0 ;
}
```

   A) – 5. B) – 1.

   C) 1. D) 0.

3. What is the value of *a* after executing the following C program segment ?

```
int main()
{
int a = 0, i = 0 ;
for (i = 0 ; i < 5 ; i++)
{
a++ ;
continue ;
}
}
```

   A) 2. B) 3.

   C) 4. D) 5.

Turn over

4. Which keyword is used to come out of a loop only for that iteration ?

   A) Break. B) Continue.

   C) Return. D) None of the above.

5. Array elements are always stored in ———— memory locations.

   A) Random. B) Sequential.

   C) Both Random and Sequential. D) None of the above.

6. Which of the following cannot be a C structure member ?

   A) Structure. B) Array.

   C) Function. D) Union.

7. A user-defined function which call itself is known as ————.

   A) Iteration. B) Nesting.

   C) Recursion. D) Looping.

8. What is the base data type of a pointer variable by which the memory would be allocated to it?

   A) Int. B) Float.

   C) Double. D) Unsigned int.

9. Choose the right statement from below for the functions *fscanf()* and *scanf()*.

   A) *fscanf()* can read from standard input whereas *scanf()* specifies a stream from which to read.

   B) *fscanf()* can specifies a stream from which to read whereas *scanf()* can read only from standard input.

   C) *fscanf()* and *scanf()* has no difference in their functions.

   D) *fscanf()* and *scanf()* can read from specified stream.

(9 × 1 = 9 marks)

Part B

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

10. What are C tokens ? Give suitable example.

11. What is *if..else* construct ? Explain its syntax.

12. Explain how a string variable is declared and initialized in C.

13. Explain how recursion is differ from iteration.

14. What is a pointer variable ? How can it be initialized ?

(5 × 2 = 10 marks)

Part C

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

15. Explain different relational operators in C.
16. What are *do..while* construct in C ? Give an example.
17. How will you declare and initialize one dimensional array in C ?
18. Explain the different categories of user defined functions in C.
19. Explain the syntax and function for opening and closing a file in C.
20. Write a C program to generate N prime numbers.
21. Write a C program to find the sum of all diagonal elements in a square matrix.
22. Explain the differences between call-by-value and call-by-reference with illustration.

(5 × 5 = 25 marks)

Part D

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

23. Explain auto, register, extern, static variables in C. Also illustrate each with suitable example.
24. Explain the syntax and functions of different dynamic allocation functions in C.
25. Write a C program to swap two numbers using user defined function *swap()*.

(2 × 10 = 20 marks)

C 4122 (Pages : 4) Name.....

Reg. No.....

SECOND SEMESTER (CUCBCSS–UG) DEGREE EXAMINATION
APRIL 2021

Computer Science

BCS 2B 02—PROBLEM SOLVING USING C

(2017 Admissions)

Time : Three Hours Maximum : 80 Marks

Part A

Answer **all** *questions.*
Each question carries 1 *mark.*

1. To input a set of values in C ———————— built-in function is used.

2. Which of the following is used to enclose the body of a function in C ?

   A []. B {}.

   C (). D None of the above.

3. What is the output of following C program segment ?

```
# include <stdio.h>
int main()
{
    int i = – 3 ;
    int k = i % 2;
    printf ("%d\n", k);
}
```

   A –1. B 0.

   C 1. D – 2.

4. The operator && in C language is known as ————————.

   A OR operator. B NOT operator.

   C AND operator. D None of the above.

Turn over

5. Which of the following is not a loop control structure in C ?

A for. B while.

C if..else. D do..while.

6. What will be the output of the following C program segment ?

```
void main()
{
int i=5 ;
switch(i)
{
case 3: printf("three");
case 4: printf("four");
case 5: printf("five");
case 6: printf("six");break;
case 7: printf("seven ");
default: printf("default");
}
}
```

A Five. B Fivesixsevendefault.

C Fivesix. D Threefourfivesix.

7. In C language, array index starts from ————————.

A – 1. B 0.

C 1. D None of the above.

8. Which of the following is the correct statement of C Structure data type ?

A C structure is always 128 bytes.

B Size of C structure is the total bytes of all elements of structure.

C Size of C structure is the size of the largest element in the structure.

D None of the above.

9. Say True *or* False : The '->' operator can be used to access structures elements using a pointer to a structure variable only.

10. Say True *or* False : If two strings are found to be unequal then strcmp() returns differences between the first non-matching pair of characters.

(10 × 1 = 10 marks)

Part B

Answer **all** *questions.*
Each question carries 3 *marks.*

11. What are the fundamental data types in C ?

12. Give short account on special operators in C.

13. Explain the difference between *getchar()* and *gets()* functions in C ?

14. Explain the structure of a user defined function in C.

15. Explain * operator and & operator with example.

(5 × 3 = 15 marks)

Part C

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

16. Explain the features of C language Integrated Development Environment (IDE).

17. Give an account on various mathematical functions supported in C language.

18. What is **if** construct ? Explain the different forms of **if** construct with example.

19. What is a String ? Explain the different string handling functions in C.

20. Compare and contrast Pointer to array and Pointer to structure.

21. Write a C program to find the factorial of a number using recursion.

22. Distinguish between **malloc()** and **calloc()** functions in C.

23. What are command line arguments ? Explain its significance using examples.

(5 × 5 = 25 marks)

Part D

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

24. Explain the structure of C program with illustration.

25. Explain the differences between entry-controlled and exit-controlled loop in C. Give suitable examples for each one.

26. Write a C program to create structure called "Tournament" with following fields : Tournament_no, name, no_of_terms. Read the details of 5 tournaments and display the tournaments with highest and lowest number of terms.

27. What is a user-defined function in C ? How it differs from library functions in C ? Illustrate the way of prototyping, declaring and defining a user-defined function in C.

28. Write a C program that reads a file containing integers and appends at its end with the sum of all those integers.

(3 × 10 = 30 marks)

C 4121 (Pages : 2) Name.....

Reg. No.....

SECOND SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION
APRIL 2021

Computer Science

BCS 2B 02—OOP CONCEPTS AND DATA STRUCTURES USING C++

(2014 Admissions)

Time : Three Hours Maximum : 80 Marks

Part A

Answer **all** *questions.*
Each question carries 1 *mark.*

1. Run-time or dynamic allocation of memory may be done using the C++ operator ————————.
2. The default access specifier for members of a class is ————————.
3. A———————— operator is called as de-referencing operator.
4. The constructor and ———————— of a class are invoked automatically.
5. ———————— data structure is used in evaluating mathematical expressions with parentheses.
6. In a———————— list, the last node has a pointer to the first node.
7. FIFO policy is associated with ———————— data structure.
8. The maximum number of comparisons done by the sequential search algorithm for finding a specific item in the list of n items is ————————.
9. Say True *or* False : Stack can be implemented in C++ either using arrays or linked list.
10. Say True *or* False : A private member of a class cannot be inherited either in public mode or in private mode.

(10 × 1 = 10 marks)

Part B

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

11. Define Polymorphism.
12. What do you mean by virtual function ?

Turn over

13. Explain the structure and internal representation of a one dimensional array.
14. What are circular queues ?
15. What is binary search ? Explain how it differ from linear search.

(5 × 2 = 10 marks)

Part C

Answer any **five** *questions.*
Each question carries 4 *marks.*

16. What are the different types of inheritance ? Explain.
17. Give an account on constructors and destructors in C++.
18. Explain how to overload unary and binary operator using examples.
19. Describe the various file mode options in C++.
20. What is an Array ? Explain the different operations on one dimensional array.
21. Write down the algorithm for adding a node at the end of the doubly linked list.
22. Explain the implementation of stack using linked list.
23. Write a brief note on hash functions.

(5 × 4 = 20 marks)

Part D

Answer any **five** *questions.*
Each question carries 8 *marks.*

24. Define function overloading. Write a C++ program to define three overloaded functions to swap two integers, swap two floats and swap two doubles.
25. Explain the characteristics of OOP.
26. Explain dynamic memory allocation methods in C++ with illustration.
27. Write a C++ program to add and subtract two time objects using operator Overloading
28. What is a Queue ? Write C++ code for implementing different operations on queues.
29. Write down the algorithm for converting infix expression to postfix form using stack.
30. What is doubly linked list ? How it differs from circular list ? Write down the algorithm for adding a node in the doubly linked list.
31. Explain merge sort algorithm with example.

(5 × 8 = 40 marks)