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## COA 104
## B.A./B.Sc. IInd SEMESTER EXAMINATION, 2023
## COMPUTER APPLICATION
### (Problem Solving Using Computer)
### Credit (4+0)
### (CBCS Mode)

| Important Instruction : | महत्वपूर्ण निर्देश : |
|---|---|
| The question paper is in two sections : Section-A (Descriptive) will be of 15 marks and Section-B (Objective) will be of 60 marks. Section-A will be deposited at the end of the examination and answer sheet (OMR) of Section-B will be deposited. | प्रश्न पत्र दो भागो में है : खण्ड–अ (व्याख्यात्मक) 15 अंकों का होगा एवं खण्ड–ब (बहुविकल्पीय) 60 अंक का होगा। खण्ड–अ परीक्षा के अन्त में जमा कर लिया जायेगा एवं खण्ड–ब का उत्तर पत्रिका (OMR) जमा होगा। |

अनुक्रमांक (अंकों में) / Roll No. (In Figures) :

Time : 1 Hour
समय : 1 घण्टा

3509

Max. Marks : 15
अधिकतम अंक : 15

अनुक्रमांक (शब्दों में) : _____

Roll No. (In Words) : _____

अभ्यर्थी का नाम : _____

Student Name : _____

पिता का नाम : _____

Father Name : _____

कक्ष परिप्रेक्षक के हस्ताक्षर / Invigilator's Signature : _____

Note : (i)  Total No. of Questions are **Six**.
       (ii)  Answer **Three** questions in all.
       (iii)  All Questions carry equal marks.

नोट : (i)  कुल **छः** प्रश्न दिए गये हैं।
      (ii)  किन्हीं **तीन** प्रश्नों के उत्तर दीजिए।
      (iii)  सभी प्रश्नों के अंक समान हैं।

1. What is Flow Chart ? How Flow Chart differ from algorithm ? Explain different symbols used for flow chart with example.

2. What is recursion ? What are the advantages and disadvantages of recursion ?

3. Write and explain about switch statement in C. Write a program to perform Arithmetic operations using switch.

4. What is an array and how to declare and initialized 1-D and 2-D array with example? Write a program in C to read and display the elements using 1-D array.

5. Define structure and how to initialize a structure. How do we represent self-referential structures ?

6. What is data structure? Why we need data structure ? List at list five data structures.

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Date (तिथि) : _____

**Paper ID**
(To be filled in the OMR Sheet)

# 3509

अनुक्रमांक (अंकों में) :
Roll No. (In Figures) :

अनुक्रमांक (शब्दों में) :

Roll No. (In Words) : _____

**Time : 1 Hour**
समय : 1 घण्टा

**Max. Marks : 60**
अधिकतम अंक : 60

नोट : पुस्तिका में 40 प्रश्न दिये गये हैं, सभी प्रश्न करने होंगे। प्रत्येक प्रश्न 1.5 अंक का होगा।

| Important Instructions : | महत्वपूर्ण निर्देश : |
|---|---|
| 1. The candidate will write his/her Roll Number only at the places provided for, i.e. on the cover page and on the OMR answer sheet at the end and nowhere else. | 1. अभ्यर्थी अपने अनुक्रमांक केवल उन्हीं स्थानों पर लिखेंगे जो इसके लिए दिये गये हैं, अर्थात् प्रश्न पुस्तिका के मुख्य पृष्ठ तथा साथ दिये गये ओ०एम०आर० उत्तर पत्र पर, तथा अन्यत्र कहीं नहीं लिखेंगे। |
| 2. Immediately on receipt of the question booklet, the candidate should check up the booklet and ensure that it contains all the pages and that no question is missing. If the candidate finds any discrepancy in the question booklet, he/she should report the invigilator within 10 minutes of the issue of this booklet and a fresh question booklet without any discrepancy be obtained. | 2. प्रश्न पुस्तिका मिलते ही अभ्यर्थी को जाँच करके सुनिश्चित कर लेना चाहिए कि इस पुस्तिका में पूरे पृष्ठ हैं और कोई प्रश्न छूटा तो नहीं है। यदि कोई विसंगति है तो प्रश्न पुस्तिका मिलने के 10 मिनट के भीतर ही कक्ष परिप्रेक्षक को सूचित करना चाहिए और बिना त्रुटि की दूसरी प्रश्न पुस्तिका प्राप्त कर लेना चाहिए। |

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.  All keywords in C are in -

    (A)    Lowercase letters

    (B)    Uppercase letters

    (C)    Camel case letters

    (D)    None of the above

3.  Which of the following declaration is not supported by C language ?

    (A)    String str ;

    (B)    Char * str ;

    (C)    Float str =3ez ;

    (D)    None of these

4.  What is an example of iteration in C ?

    (A)    For

    (B)    While

    (C)    Do-while

    (D)    All of the above

5.  In C language, FILE in of which data type ?

    (A)    Int

    (B)    Cher *

    (C)    Struct

    (D)    None of the above

6. What will be the final value of $x$ in the following C code ?

```
# include < stdio.h>
Void main ( )
{
int x = 5 * 9/3 + 9;
}
```

(A) 3.75

(B) Depends on compiler

(C) 24

(D) 3

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

```
# include <stdio.h>
void main ( )
{
1 < 2 ? return 1:return 2 ;
}
```

(A) Return 1

(B) Return 2

(C) Varies

(D) Compile time error

8. Comment on the following C statement.

```
n = 1 ;
Print f ("%d, %dn", 3*n, n++);
```

The output will be -

(A) 3, 2

(B) 3, 1

(C) 6, 1

(D) Compiler dependent

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

```
# include <stdio.h>
int main ( )
{
Int a = 1, b = 1, c ;
C=a++ +b;
print f ("%d, %d", a, b);
}
```

   (A)   a=1, b=1
   (B)   a=2, b=1
   (C)   a=1, b=2
   (D)   a=2, b=2

10.  What are the types of functions in C language ?
   (A)   Library functions
   (B)   User defined functions
   (C)   Both library and user defined function functions
   (D)   None of these

11.  Read the following program :

```
main ( )
{
int x = 1, y = 2, z = 3;
Print f ("%d", x + = (x+= 3, 5, x))
}
```

   Then the output will be -
   (A)   6
   (B)   9
   (C)   12
   (D)   8

12. How many times will the following loop executed ?

for (i=1; i<=10; i=i-1)

(A) Forever

(B) Never

(C) 0

(D) 1

13. Which one of the following is a loop construct that will always be executed are?

(A) For

(B) While

(C) Switch

(D) Do-while

14. What is the value of EOF ?

(A) -1

(B) 0

(C) 1

(D) 10

15. Justify the following declaration.

int * Ptr, P;

(A) Ptr is a pointer to integer, p is not

(B) Ptr and P, both are pointers to integer

(C) Ptr is a pointer to integer, P may or may not be

(D) Ptr and p both are not pointers to integer

16. How is an array initialized in C language ?

(A) Int a [3] = {1, 2, 3};

(B) Int a = {1, 2, 3};

(C) It a [ ] = new int [3];

(D) Int a (3) = [1, 2, 3];

17. How are string represented in memory in C ;

    (A)    The array of characters

    (B)    The object of same class

    (C)    Same as other primitive data types

    (D)    Linked List of characters

18. Which of the following is the advantage of the array data structure ?

    (A)    Elements of mixed data types can be stored

    (B)    Easier to access the elements in an array

    (C)    Index of the first element start from 1

    (D)    Elements of an array cannot be sorted

19. Which of the following data structures can be used to implement Queues ?

    (A)    Stack

    (B)    Arrays

    (C)    Linked list

    (D)    All of the above

20. Which of the following data structures allow insertion and deletion from both ends ?

    (A)    Stack

    (B)    Deque

    (C)    Queue

    (D)    Strings

21. Which data structure is mainly used for implementing the recursive algorithm ?

    (A)    Queue

    (B)    Stack

    (C)    Array

    (D)    List

22. What is the output of the following code ?

```
# include < stdio.h >
int main ( )
{
int arr [5] = {10, 20, 30, 40, 50} ;
Print f ("%d", arr [5]) ;
return 0 ;
}
```

   (A)   Garbage value

   (B)   10

   (C)   50

   (D)   None of above

23. Which one of the following is the process of inserting an element in the stack ?

   (A)   Insert

   (B)   Add

   (C)   Push

   (D)   Pop

24. If the elements '4', '3', '2' and '1' are added in a stack, so what would be the order of removal ?

   (A)   1234

   (B)   2134

   (C)   4321

   (D)   None of the above

25. Which one of the following node is considered the top of the stack if the stack is implemented using the linked list ?

   (A)   First node

   (B)   Second node

   (C)   Last node

   (D)   None

26. Which of the following principle does Queue use ?

    (A)    LIFO

    (B)    FIFO

    (C)    Linear tree

    (D)    Ordered array

27. Which one of the following is not the type of the Queue ?

    (A)    Linear Queue

    (B)    Circular Queue

    (C)    Double ended Queue

    (D)    Single ended Queue

28. Which one of the following is the overflow condition if a circular Queue is implemented using array having size MAX ?

    (A)    Rear = Max - 1

    (B)    Rear = MAX

    (C)    Front = (rear + 1) mod MAX

    (D)    None of the above

29. Which of the following that determines the need for the circular Queue ?

    (A)    Avoid wastage of memory

    (B)    Access the Queue using priority

    (C)    Follows the FIFO principles

    (D)    None of the above

30. In the linked list implementation of Queue, where will the new element be inserted ?

    (A)    At middle position of the linked list

    (B)    At head position of the linked list

    (C)    At tail position of the linked list

    (D)    None of the above

31. Which of the following is the time complexity to search an element in the linked list ?

    (A)    0 (1)

    (B)    0 (n)

    (C)    0 (log n)

    (D)    0 (n log n)

32. Select a function which is used as a formatted output file function -

    (A)    Print f ( )

    (B)    F print f ( )

    (C)    Puts ( )

    (D)    F puts ( )

33. Which is data type of file pointer ?

    (A)    Int

    (B)    Double

    (C)    Void

    (D)    File

34. What are the C functions used to read or write a file in binary mode ?

    (A)    F print ( ), f scant ( )

    (B)    F read f ( ), f write ( )

    (C)    Read ( ), write f ( )

    (D)    Print f ( ), scant ( )

35. Which type of file can not be opened using token ( ) ?

    (A)    . txt

    (B)    . bin

    (C)    . c

    (D)    None of the above

36. If there is any error while opening a file, token will return ?

   (A) Nothing

   (B) EOF

   (C) NULL

   (D) None of these

37. Get (C) returns EOF when -

   (A) When get (C) tail to read the character

   (B) When end of file is reached

   (C) Both (A) and (B)

   (D) None of these

38. Which of the following is not an arithmetic operation ?

   (A) a* = 10;

   (B) a / = 10;

   (C) a ! = 10;

   (D) a % = 10;

39. Which of the following is a storage specifier ?

   (A) Enum

   (B) Union

   (C) Auto

   (D) Volatile

40. For a typical program, the input is taken using _____ .

   (A) Scanf

   (B) Files

   (C) Command-line

   (D) All of the mentioned

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