

SEMESTER EXAMINATION, DECEMBER - 2024

Course Name: - B.Tech (CSE/AIDS)

Semester: - 1st

Paper Name: - Programming for Problem Solving Using C

Paper Code: - NES-101

Time - 3 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer.

Max Marks-70

समय-3 घण्टे + 20 मिनट प्रति घंटे अतिरिक्त-दृष्टिबाधित एवं सह लेखक परीक्षार्थियों के लिए।

अधिकतम अंक-70

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries 3 mark. All questions are compulsory.
- Section B- Answer any 5 out of 7 given questions. Each question carries 7 marks.
- Section C- Answer any 2 out of 3 given questions. Each question carries 10 marks.
- Section D- Each question carries 2 mark. All questions are compulsory.

निर्देश:

- प्रश्न पत्र में तीन खण्ड अ, ब, व स हैं। सभी खण्ड अनिवार्य हैं।
- खण्ड-अ में प्रत्येक प्रश्न तीन अंक का है। सभी प्रश्न अनिवार्य हैं।
- खण्ड-ब में सात प्रश्नों में से किन्हीं पाँच प्रश्नों के उत्तर दें। प्रत्येक प्रश्न सात अंक का है।
- खण्ड-स में तीन प्रश्नों में से किन्हीं दो प्रश्नों के उत्तर दें। प्रत्येक प्रश्न 10 अंक का है।
- खण्ड-द में प्रत्येक प्रश्न दो अंक का है। सभी प्रश्न अनिवार्य हैं।

Section - A (खण्ड-अ)

Objective Questions (वस्तुनिष्ठ प्रश्न)

1. Answer all the following questions.

5x3 =15

निम्नलिखित सभी प्रश्न अनिवार्य हैं।

- i) What is #include <stdio.h>?
- a) Preprocessor directive
b) Inclusion directive
c) File inclusion directive
d) none of the mentioned
- ii) Who is the father of C language?
- a) Steve Jobs
b) James Gosling
c) Dennis Ritchie
d) Rasmus Lerdorf
- iii) What is an example of iteration in C?
- a) for
b) while
c) do-while
d) All of these
- iv) scanf() is a predefined function in _____ header file.
- a) stdlib.h
b) ctype.h
c) stdio.h
d) stdarg.h
- v) Which of the following is the first computer to use Stored Program Concept?
- a) UNIVAC
b) ENIAC
c) EDSAC
d) None of above

Section - B (खण्ड-ब)
Short Answer Questions (लघुउत्तरीय प्रश्न)

2. Answer any five of the following questions.
निम्नलिखित में से किन्हीं पाँच प्रश्नों के उत्तर दें।

5x7=35

- i. Illustrate block diagram of computer and explain its components.
- ii. Write a program to find the Square of any given number using user define function.
- iii. Write the difference between Compiler, Interpreter and Assembler.
- iv. Define recursive function. Write a program to find the factorial of any given number using recursive function.
- v. Write an algorithm and program to find the entered number is palindrome number or not.
- vi. Explain the selection sort with example.
- vii. Discuss the methods for dynamic memory allocation. Explain various features of file handling.

Section - C (खण्ड-स)
Descriptive Questions (विवरणात्मक प्रश्न)

3. Answer any two of the following questions.
निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर दें।

2x10=20

- i. Define Array and its types. Write a C program to perform addition of two matrices.
- ii. Explain flowchart. Draw the flowchart and write a program to find the greatest among three numbers.
- iii. Convert following numbers as:
A) $(1100111001)_2$ to $(?)_8$
B) $(989)_{10}$ to $(?)_{16}$
C) $(1637)_{10}$ to $(?)_2$
D) $(111001010011)_2$ to $(?)_{10}$
E) $(3D6)_{16}$ to $(?)_2$

Section- D (Mid-Test)

Course Name: - B.Tech (CSE/AIDS)
Paper Name: - Programming for Problem Solving Using C
Time - 30 minutes

Semester: - First
Paper Code: - NES-101
Max Marks-20

Note: - Answer all the following questions:

2x10=20

Q1. Why is a macro used in place of a function?

- A) It reduces execution time.
- B) It reduces code size.
- C) It increases execution time.
- D) It increases code size.

Q2. In the C language, the constant is defined _____.

- A) Before main
- B) After main
- C) Anywhere, but starting on a new line
- D) None of the these

Q3. What is the result after execution of the following code if a is 10, b is 5, and c is 10?

```
If ((a > b) && (a <= c))
```

```
    a = a + 1;
```

```
else
```

```
    c = c+1;
```

- A) a = 10, c = 10
- B) a = 11, c = 10
- C) a = 10, c = 11
- D) a = 11, c = 11

Q4. Which one of the following is a loop construct that will always be executed once?

- A) For
- B) While
- C) Switch
- D) do while

Q5. Directives are translated by the

- A) Pre-processor
- B) Compiler
- C) Linker
- D) Editor

Q6. Who is the father of Computer?

- A) James Gosling
- B) Dennis Ritchie
- C) Charles Babbage
- D) Bjarne Stroustrup

Q7. Which of the following will copy the null-terminated string that is in array src into array dest?

- A) dest = src;
- B) dest == src;
- C) strcpy(dest, src);
- D) strcpy(src, dest);

Q8. Study the following statement

```
#include <stdio.h>
int main()
{
    int *ptr, a = 10;
    ptr = &a;
    *ptr += 1;
    printf("%d,%d/n", *ptr, a);
}
```

What will be the output?

- A) 10, 10
- B) 10, 11
- C) 11, 10
- D) 11, 11

Q9. What will be the output of this program?

```
int main()
{
    int a=10, b=20;
    printf("a=%d b=%d",a,b);
    a=a+b;
    b=a-b;
    a=a-b;
    printf("a=%d b=%d",a,b);
    return 0;
}
```

- A) a = 20, b = 20
- B) a = 10, b = 20
- C) a = 20, b = 10
- D) a = 10, b = 10

Q10. ____ generation of computer started with using vacuum tubes as the basic components

- A) 1st
- B) 2nd
- C) 3rd
- D) 4th