

# SEMESTER EXAMINATION, APRIL-MAY - 2025

Course Name: - B.Tech (AIFM/CE/EE/ME/ECE)

Semester: - 2<sup>nd</sup>

Paper Name: - Programming for Problem Solving Using C

Paper Code: - NES-201

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

Max Marks-70

Additional 30 Minutes for Mid-Test.

समय-3 घण्टे+ 20 मिनट प्रति घंटे अतिरिक्त-दृष्टिबाधित एवं सहलेखक परीक्षार्थियों के लिए।  
30 मिनट अतिरिक्त मिड-टेस्ट 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 02 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 02 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) All keywords in C \_\_\_\_\_.

- a) Lower Case letters
- c) Camel Case letters

- b) Upper Case letters
- d) None of the mentioned

ii) Which of the following is not a logical operator?

- a) &&
- c) ||

- b) !
- d) |

iii) When a C program is started, O.S environment is responsible for opening file and providing pointer for that file?

- a) Standard input
- c) Standard error

- b) Standard output
- d) All of these .

iv) Binary search algorithm cannot be applied to.

- a) Sorted linked list
- c) Sorted linear Array
- b) Sorted Binary tree
- d) Pointer Array

v) Why is a macro used in place of a function?

- a) It reduces execution time.
- c) It increases execution time.

- b) It reduces code size.
- d) It increases code size.



**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. Define a computer. Draw and Explain all component of Digital computers. (5)
- ii. Write the difference call by value and call by reference. Write a program to swap any two numbers without using third variable.
- iii. What is software? Explain various types of computer software's. (3)
- iv. Write a program to print the day of the week depending on the value of an integer variable 'day'. It assumes that day 1 is Sunday.
- v. Draw the flowchart and write a program to find the greatest among three numbers. (5)
- vi. Explain recursion. Write a program to find the factorial of any given number by using recursive function. (4)
- vii. Define Structure? Write the difference between structure and union. (4)

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

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

2x10=20

- i) Explain following with example :  
~~A) Data types~~ ~~B) File Handling~~ ~~C) Sorting~~ ~~D) Pointer~~
- ii) Define array and its types? Write a program to read an array of integers and print the sum of the elements of the array.
- iii) Convert following numbers as:  
~~A)  $(111010010)_2$  to  $(?)_{10}$~~   
~~B)  $(897)_{10}$  to  $(?)_8$~~   
~~C)  $(491)_{10}$  to  $(?)_2$~~   
~~D)  $(100111001010011)_2$  to  $(?)_{16}$~~   
~~E)  $(3417)_{10}$  to  $(?)_{16}$~~

4  
 0100 \*\*\*

6 ES 3

4 14 5 3  
 4 ES 3

4 2 1  
 100

**SEMESTER END EXAMINATION, APRIL-MAY, 2025**

**Mid-Test**

Course Name: - B.Tech (AIFM/CE/EE/ME/ECE)

Semester: - Second

Paper Name: - Programming for Problem Solving Using C

Paper Code: - NES-201

Time - 30 minutes

Max Marks-20

Note: - Answer all the following questions:

Q1. What is the 16-bit compiler allowable range for integer constants?

- A) -3.4e38 to 3.4e38
- B) -32767 to 32768
- C) -32668 to 32667
- D) -32768 to 32767



What is required in each C program?

- A) The program must have at least one function:
- B) The program does not require any function.
- C) Input data
- D) Output data

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. How many characters can a string hold when declared as follows?

char name[20];

- A) 18
- B) 19 ✓
- C) 20 ✓
- D) None of the these

Q5. Directives are translated by the

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

Q6. What will the result of num variable after execution of the following statements?

int num = 58;

num % = 11;

- A) 3
- B) 5 ✓
- C) 8
- D) 11

Q7. Which of the following language does the computer understand?

- A) Computer understands only C Language
- B) Computer understands only Assembly Language
- C) Computer understands only Binary Language.
- D) Computer understands only BASIC



**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

(x2)

**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

(x2)

**Q10. C preprocessors can have compiler specific features.**

- A) True
- B) False
- C) Depends on the standard
- D) Depends on the platform

(x2)

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**Section - A (खण्ड-अ)**

### Objective Questions (वस्तुनिष्ठ प्रश्न)

1. Answer all the following questions.

 $5 \times 3 = 15$ 

निम्नलिखित सभी प्रश्न अनिवार्य हैं।

- i) Which of the following cannot be a variable name in C?  
a) Volatile                                      b) True  
c) Friend                                         d) Export
- ii) What is the sizeof(char) in 32-bit C compiler?  
a) 1 bit    b) 2 bits  
c) 1 byte    d) 2 bytes
- iii) What are the elements present in the array of the following C code?  
`int array[5] = {5}`  
a) 5, 5, 5, 5, 5                                b) 5, 0, 0, 0, 0  
c) 5, (garbage), (garbage), (garbage), (garbage)      d) (garbage), (garbage), (garbage), (garbage), 5
- iv) Who is the father of C language?  
a) Steve Jobs                                    b) James Gosling  
c) Dennis Ritchie                              d) Rasmus Lerdorf
- v) What is an example of iteration in C?  
a) for    b) while  
c) do-while                                       d) all of the mentioned

### Section - B (खण्ड-ब)

### Short Answer Questions (लघुउत्तरीय प्रश्न)

**2. Answer any five of the following questions.**

 $5 \times 7 = 35$ 

निम्नलिखित में से किन्हीं पाँच प्रश्नों के उत्तर दें।

- i. Describe the concept of variable with example. Write a program of multiplication and division of two integers using C language.



- ii. How to write pseudo code and algorithm with example. Differentiate between algorithm, flowchart and pseudo code.
- iii. What is the role of header file? How can you differentiate between low level and mid-level and high-level language.
- iv. Write the difference between Compiler, Interpreter and Assembler.
- v. What is linear search? Write a program to implement linear search.
- vi. Differentiate between while and do-while loop. Write a program to find the sum of the digits of a given number.
- vii. Define Union? Write the difference between structure and union.

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

**2x10=20**

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

- i) Mention the need of operators. Explain the various operators with example. Illustrate the operator precedence in detail.
- ii) What is the difference between entry control loop and exit control loop? Write a program to check whether an alphabet is vowel or consonant?
- iii) Convert following numbers as:
  - A)  $(10011010010)_2$  to  $(?)_8$
  - B)  $(957)_{10}$  to  $(?)_2$
  - C)  $(725)_{10}$  to  $(?)_8$
  - D)  $(11010111001011)_2$  to  $(?)_{16}$
  - E)  $(1342)_{10}$  to  $(?)_{16}$

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**MID TEST EXAMINATION, APRIL-MAY – 2025**

**Section- D**

**Course Name:** - B.Tech (AIFM/CE/EE/ME/ECE)

**Semester:** - Second

**Paper Name:** - Programming for Problem Solving Using C

**Paper Code:** - NES-201

**Time** - 30 minutes

**Max Marks**-20

**Note:** - Answer all the following questions:

**Q1. What is the 16-bit compiler allowable range for integer constants?**

- A) -3.4e38 to 3.4e38
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- D) -32768 to 32767



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- C) Input data
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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

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```
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- D) Editor

Q6. What will the result of num variable after execution of the following statements?

```
int num = 58;
```

```
num %= 11;
```

- A) 3
- B) 5
- C) 8
- D) 11

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```
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    *ptr += 1;
    printf("%d,%d/n", *ptr, a);
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```

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

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- A) True
- B) False
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\*\*\*