



**MAULANA ABUL KALAM AZAD UNIVERSITY OF
TECHNOLOGY, WEST BENGAL**

Paper Code : BCAN-103

C PROGRAMMING

Time Allotted: 3 Hours

Full Marks: 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Group – A

(Multiple Choice Type Questions)

1. Choose the correct alternative for *any ten* of the following: 1×10=10
- (i) Identify the erroneous expression:
- | | |
|-------------------------------|-------------------------------------|
| (a) <code>a = b = 2,4;</code> | (b) <code>num = ++a * 5;</code> |
| (c) <code>num *= 4;</code> | (d) <code>num = a++ - b * 2;</code> |
- (ii) The default return type of any C function is
- | | |
|-----------------------|---------------------|
| (a) a character value | (b) a decimal value |
| (c) an integer value | (d) void |
- (iii) Which statement is used to terminate the execution of the nearest enclosing loop in which it appears?
- | | |
|-------------|--------------|
| (a) Break | (b) Continue |
| (c) Default | (d) Case |
- (iv) "Interest rate is decreased by 2%". Select the statement below, which will display the same:
- | |
|----------------------------------------------------------------|
| (a) <code>printf("Interest rate is decreased by 2\\%");</code> |
| (b) <code>printf("Interest rate is decreased by 2'%");</code> |
| (c) <code>printf("Interest rate is decreased by 2%%");</code> |
| (d) <code>printf("Interest rate is decreased by 2%");</code> |

- (v) Given an integer array, arr[], the i^{th} element can be accessed by writing
- (a) (arr + i)
 - (b) *(i + arr)
 - (c) arr[i]
 - (d) All of these
- (vi) The operator * operating in unary mode signifies a
- (a) Referencing operator
 - (b) Dereferencing operator
 - (c) Address operator
 - (d) None of these
- (vii) A structure member variable is generally accessed using the
- (a) address operator
 - (b) dot operator
 - (c) comma operator
 - (d) None of these
- (viii) The variable retains its value in-between function calls is _____.
- (a) auto
 - (b) static
 - (c) register
 - (d) extern
- (ix) void main() {
 int a=0,b=1,c=2,x;
 x=a++||b++||c++;
 printf("%d%d%d",x,a,b,c);
}
- (a) 1 1 2 3
 - (b) 1 0 1 2
 - (c) 1 1 1 2
 - (d) None of these
- (x) Find the output:
- ```
int main()
{
 int a=9; char ch='A';
 a = a + ch + 24;
 printf("\t%d \t%d \t%c",ch,a,a);
 return 0;
}
```
- (a) 65 98 b
  - (b) 66 65 a
  - (c) error
  - (d) None of these
- (xi) The preprocessor directives must be preceded by which symbol?
- (a) \*
  - (b) &
  - (c) @
  - (d) #

**Group – B**

**(Short Answer Type Questions)**

Answer *any three* of the following.

5×3=15

2. What is the difference between break and continue? What is ternary operator? What is a keyword?  
2+2+1=5
3. Draw a flowchart to check whether a user given number is palindrome or not. 5
4. Write a C program to add the following series:  
1 + 2/2! + 3/3! + 4/4! + \_\_\_\_\_ + n/n!, where value of n is given by user. 5
5. What do you mean by scope of a variable? Explain the different storage classes available in C. 1+4=5
6. Write a C program to convert a binary number to its equivalent decimal number. 5

**Group – C**

**(Long Answer Type Questions)**

Answer *any three* of the following.

15×3=45

7. (a) Explain the difference between “call by value” and “call by reference” with example.  
(b) What are the advantages of using functions in C programming? What is the difference between user-defined functions & library functions?  
(c) What is the difference between recursion and iteration?  
(d) Write a program to check whether the number given by the user is a Krishna Murthy number or not.  
Krishna Murthy Number: It is a number which is equal to the sum of the factorials of all its digits.  
For example: 145 = 1! + 4! + 5! = 1 + 24 + 120 = 145  
4+(2+1)+2+6=15
8. (a) Differentiate between while loop and do-while loop.  
(b) What is switch-case? What are the advantages of switch-case?  
(c) Differentiate between getc() and getchar() function.  
(d) Write a C program to print the sum of the following series of n terms:  
1 + (1+2) + (1+2+3) + \_\_\_\_\_  
3+(2+2)+3+5=15
9. (a) What is string in C? Explain with example.  
(b) Write a C program to reverse a string given as user input.  
(c) What are local variable and global variable?  
(d) What is a pointer?  
(e) Write a recursive function for GCD calculation.  
2+5+2+1+5=15

10. Define Structure and Union. How does union differ from structure? How can you access the member of these types? Discuss with an example. Write a function that will scan a character string passed as an argument and convert all lowercase characters into their uppercase equivalents. 3+3+3+6=15
11. Write short notes on *any three* of the following: 5×3=15
- (a) malloc( ) and calloc( )
  - (b) Actual and Formal arguments
  - (c) strcpy( ), strcat( ), strcmp( ) and strcmp( ) functions
  - (d) Function declaration, function definition, function calling
  - (e) Macro in C language
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