This question paper contains 2 printed pages. Roll No. ....247304.....

B.C.A. (Pt. -I) **Pri. of Pro. Lan. (Through C)**

134

B.C.A (Part-I) EXAMINATION, 2019

(Faculty of Science)

(Three Year Scheme of 10+2+3 Pattern)

101962

PRINCIPLES OF PROGRAMMING LANGUAGE (THROUGH 'C') - 134

Time Allowed : Three Hours Maximum Marks : 100

Answer all the questions (short answer as well as descriptive) are to be given in the main answer-book only. Answers of short answer type questions must be given in sequential order. Similarly, all the parts of one question of descriptive part should be answered at one place in the answer-book. One complete question should not be answered at different places in the answer-book.

Write your roll numbers on question paper before start writing answers of questions.

PART - I : (Very short answer) consists of 10 questions of 2 marks each. Maximum limit for each question is up to 40 words.

PART - II : (Short answer) consists of 5 questions of 4 marks each. Maximum limit for each question is up to 80 words.

PART - III : (Long answer) consists of 5 questions of 12 marks each with internal choice.

PART - I

1. Attempt **all** questions. Each question carries 2 marks. 10x2=20

(i) What is an algorithm ?

(ii) Draw and list any 5 components used in a flow chart.

(iii) Give the skeleton/basic outline of a C program.

(iv) List logical and relational operators.

(v) Give syntax of a while loop. Describe its features.

(vi) Define an array. Declare an array to hold 5 real number values.

(vii) What is a function prototype ? What are its elements ?

(viii) What is a pointer ? Declare a pointer and an array and store the address of the array in the pointer.

(ix) Describe using a diagram how the memory is allocated for each member of a structure.

(x) How is a file opened for reading in 'read-only' mode ?

PART - II

2. Attempt **all** questions. Each question carries 4 marks. 5x4=20

(i) Write an algorithm to compute factorial of a number.

(ii) Write a C program to check if the year entered is a Leap year or not. Leap year is defined as every 4^{th} year, if it is a non-century year, and every 400^{th} year, otherwise.

(iii) Differentiate between for, while and do-while loops.

(iv) What is recursion ? Write a recursive function to calculate HCF/GCD of two numbers.

(v) Differentiate between structure and unions.

PART - III

3. What is : 4x3=12

(i) A Compiler

(ii) An Interpreter

(iii) An Assembler

(iv) A Linker

OR

Write pseudo-code and draw flow-chart to compute sum of digits of a positive integer. 12

4. Discuss about different operators available in C language. What is meant by operator precedence and associativity ? 8+4=12

OR

Write a C program using switch-case to print marks range given a student's grade as per the following table : 12

Grade Letter	Min. Marks	Max. Marks
D	0	40
C	40	60
B	60	80
A	80	100

5. Write a program to find all prime numbers between 1 and N. 12

OR

Write a C program to input and sort an array of integers using linear sort. 12

6. What is function definition ? Write a custom C function and use it in a program to find all occurrences of a character in a string. 5+7

OR

Write a program to transpose a matrix using custom function. Access the matrix using pointer notation. 12

7. (i) What are Structures and Unions ? How are they declared ? 4

(ii) Write a program to declare and use a structure to hold student data - roll no, name, program, and semester. Input details of 3 students and print them sequentially. 8

OR

Write a program to input multiple lines one-by-one and store them in a file. The input will end when the user types "STOP". Then read the file and print the output line by line again. 12

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This question paper contains 3 printed pages] Roll No. 275227

Sl.No. 1805

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B.C.A. (Part - I)

B.C.A. (Part - I) EXAMINATION, 2017
(Faculty of Science)
(Three - Year Scheme of 10 +2 + 3 Pattern)
Paper - 134
PRINCIPLES OF PROGRAMMING LANGUAGE (THROUGH 'C')

Time : Three Hours] *[Maximum Marks : 100*

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PART - III: ***(Long answer) consists of 5 questions of 12 marks each with internal choice.***

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PART - I

Attempt all Questions

Each questions carries 2 marks **[10 × 2 = 20]**

1. a) What is algorithm?
   b) Give flow chart symbols for I/O, processing terminal and flow lines.
   c) How do we create constants in 'C'? Give syntax.
   d) What are local variables?
   e) Discuss purpose and syntax of goto statement.
   f) How do we read and write strings in 'C' Explain.
   g) What are formal parameters?

h) Define pointers.

i) How do we create structures in 'C'? Explain.

j) Differentiate between fprintf ( ) and printf( ).

PART - II

Attempt all questions

Each questions carries 4 marks [5 × 4 = 20]

2. a) Draw a flow chart to find out sum and average of any 3 nos.

b) Discuss any 2 (two) data types of 'C' with suitable examples.

c) Differentiate between break and continue statements with the help of appropriate example(s).

d) Differentiate between call by value and call by reference.

e) Discuss the purpose of following functions:

i) putch ( )

ii) puts ( )

iii) putchar ( )

iv) scanf ( )

PART - III

3. Discuss machine level, Assembly and high level languages is detail. [12]

OR

Write pseudocodes to find out:

a) factorial of a given no.

b) sum of 1st 10 natural no's. [6 + 6 = 12]

4. Discuss the various operators of 'C'. [12]

OR

Write a program in 'C' to findout grade of a student based on the following criterias:

a) Percentage is < = 40; grade is 'D'.

b) Percentage is > = 40 but < 50; grade is 'C'.

c) Percentage is > = 50 but < 60; grade is 'B'.

d) Percentage is > = 60 but < 75 ; grade is 'A'.

e) Percentage is > = 75 grade is 'A+'.

5. Explain the following functions:
   a) strcat ( )
   b) strcmp ( )
   c) strcmpi ( )
   d) strlen ( )
   e) strstr ( )
   f) strchr( )

[6 × 2 =12]

OR

Discuss single Dimensional and double Dimensional arrays of 'C' in breif. [12]

6. What is recursion? Why do we use recursion? Explain Also write a code to print fibonacci series with recursive function. [12]

OR

Write a 'C' program that uses of function to search a no with in an array. [12]

7. Explain the following:
   a) File modes.
   b) Steps of file handling in 'C'.
   c) Stream I/O model.

[3 × 4 = 12]

OR

Create a structure containing five members : rollno, name - of- student, marks1, marks2 & marks3. Write a program to access those members using structure variable or pointer. [12]

B.C.A. (PART-I) EXAMINATION - 2018
(Faculty of Science)
(Three year Scheme of 10+2+3 Pattern)
Paper - 134

PRINCIPLES OF PROGRAMMING LANGUAGE (THROUGH 'C')

Time Allowed : Three Hours
Maximum Marks - 100

PART I : (Very short answer) consists of 10 questions of 2 marks each. Maximum limit for each question is up to 40 words.

PART II : (Short answer) consists of 5 questions of 4 marks each. Maximum limit for each question is up to 80 words.

PART III : (Long answer) consists of 5 questions of 12 marks each with internal choice.

PART - I

1. Attempt all questions. Each question carries 2 marks. [10 x 2 = 20]
   (a) What is Pseudo Code?
   (b) Explain Programming Domains.
   (c) What is operator precedence?
   (d) What are the different methods to declare a constant in 'c'? Give example.
   (e) What is the difference between a do-while loop and a while loop?
   (f) What is the difference between a structure and a Union?
   (g) What is a NULL pointer? Give example.
   (h) What is enumerated data type? Give an example.
   (i) What is the difference between actual and formal parameters?
   (j) How do we calculate the size of a union in C?

PART - II

2. Attempt all questions. Each question carries 4 marks. [5 x 4 = 20]
   (a) Draw a flowchart to calculate factorial of a given integer number.
   (b) Describe the skeleton of a 'C' program.
   (c) Write a program to read N values in an array and then find highest value.
   (d) Explain scope, visibility and lifetime of a variable in context to functions.

(c) Discuss the purpose of the following library functions :

(i) fseek()

(ii) rewind()

(iii) feof()

(iv) ftell

PART - III

3. (a) Write pseudo code to find the sum of first 100 even numbers. [12]

OR

(b) Write an algorithm to check whether a number entered by user is prime or not. [12]

4. (a) Explain different data types available in 'C'. [12]

OR

(b) Write a program to input basic salary of an employee and calculate its gross salary according to the following :

(i) Basic Salary <=10000 : HRA=20%, DA=80%

(ii) Basic Salary <=20000 : HRA=25%, DA=90%

(iii) Basic Salary >=20000 : HRA=30%, DA=95% [12]

5. (a) Write a 'C' program to find the length of a string without using built-in functions. [12]

OR

(b) Discuss the following :

(i) Declaration of one dimensional and two dimensional arrays.

(ii) Initialization of one dimensional and two dimensional arrays.

(iii) Accessing of elements from one dimensional and two dimensional arrays.

(iv) Why array name is called a constant pointer? [3 x 4 = 12]

6. (a) What do you mean by Recursion? Write a recursive program in 'C' to print all the elements of a mean array. [2 + 10 = 12]

OR

(b) What are Pointers? How a function can be called by using a pointer to it? Explain with an example. [2 + 10 = 12]

7. (a) Write a program in C to copy content of a file to another file. [12]

OR

(b) Explain the following :

(i) Declaring a structure

(ii) Accessing members of a structure using pointer

(iii) Self-referential structure

(iv) Difference between a structure and a union [3 x 4 = 12]