

# POKHARA UNIVERSITY

Level: Bachelor  
Programme: BE  
Course: Programming in C

Semester: Spring

Year : 2018  
Full Marks: 100  
Pass Marks: 45  
Time : 3hrs.

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

*The figures in the margin indicate full marks.*

*Attempt all the questions.*

1. a) Draw block diagram of a digital computer. Explain each component in brief. 7  
b) Define the role of flow chart in efficient program maintenance with its character. Also develop a flow chart to print the Armstrong numbers between 150 to 500. 8
2. a) How can you declare following variables using suitable data types? Mobile phone numbers, address, body temperature, salary. Also explain each memory occupancy size and range. 8  
b) Why you use "continue" and "break" statement in your program? Explain with suitable example program. 7
3. a) Differentiate pre-test and post-test loop. Write a program to generate Fibonacci numbers as per user's choice. 7  
b) Write a program to read a one dimensional array, sort the numbers in ascending order and display sorted numbers. 8
4. a) Write a program to add two 3x3 matrix. Display the sum stored in third matrix. 7  
b) List the major advantages of recursive function. Write a recursive program to generate the 10 terms Fibonacci sequence starting from 2. 8
5. a) What are the advantages of using dynamic memory allocation over static memory allocation? Explain with a suitable example program. 8  
b) How can a function return multiple values? Explain with example. 7
6. a) Write a program to sort N numbers in an array dynamically. 7  
b) What is significance of file pointer in file handling? Consider a following structure 8

Roll. No.	Name	Address	Faculty	Date Of Birth		
				mm	dd	yy

Write a program to create "student.txt" file to store the above records for 100 students. Also display these records of students who are not from Kathmandu.

7. Write short notes on (Any Two):

2×5

- Documentation
- void pointer
- Generation of Computers.



# POKHARA UNIVERSITY

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

*The figures in the margin indicate full marks.*

*Attempt all the questions.*

1. a) What is computer software? Explain different types of software used in today's life. 7  
b) Write algorithm and draw flowchart to generate Fibonacci sequence of eight terms. 8
2. a) What are different data types available in C? Explain their type's qualifier, conversion character, range of value and storage size in memory occupied by each type. 7  
b) Differentiate between break and continue statements with a suitable example program. 8
3. a) What do you mean by function? Differentiate between function call by value and call by reference with suitable program. 7  
b) Write a menu driven program to work following cases, take appropriate input wherever required. 8
  - i. Reverse a number
  - ii. Find sum of individual digit
  - iii. Check for prime
  - iv. Exit
4. a) What is dynamic memory allocation? Explain different functions used in dynamic memory allocation. 7  
b) Describe string. Explain any three string handling function with examples. 8
5. a) Why array is import in programming? How can you initialize different types of arrays? Explain 2-dimensional array in C. 7  
b) What is a function prototype? Find the sum of first n natural number using recursive function. 8

**OR**

What are pre-processor directives? Differentiate between macro and function with describing necessary example.

6. a) Differentiate between local and global variable. Write a program to illustrate the use of static variable. 17
- b) Write a program to create structure for the following data for cricket game. (Country name, Player name, playing type (e.g. batting, bowling or both), Number of matches played by player and salary). Save the information in a file named "cricket.txt" and display the information of those players who had played more than 10 matches. 8

7. Write short notes on (Any two)

- a) Program testing and debugging
  - b) Operator Precedence and Associativity
  - c) Software Development Life Cycle
- 2x5



Level: Bachelor

Semester: Spring

Year : 2017

Programme: BE

Full Marks: 100

Course: Programming in C

Pass Marks: 45

Time : 3hrs.

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

*The figures in the margin indicate full marks.*

*Attempt all the questions.*

1. a) Why C is called structured programming language? Compare and contrast High level language and Low level language. 7
- b) What do you mean by algorithm and flow chart? Write an algorithm and flow chart to find palindrome of given number. 3
2. a) Why it is necessary to have a knowledge of data type in programming. Explain all types of datatype available in C. 7
- b) What is an array? Write a C program using array to find largest and smallest number from a list of 100 given numbers. 3
3. a) Define Recursion. Write a program to find sum of n natural number using recursion. 7
- b) Differentiate between switch and nested if else statements with a suitable example. 3
4. a) Explain call by value and call by pointer with suitable example. 7
- b) What is DMA? Write a program to find sum of 5 numbers supplied by user using DMA. 3
5. a) Differentiate between call by value and call by references with code examples. 8
- b) Differentiate structure and union. How the members of structure are accessed? Show it with example. 7
6. a) What do you mean by selective and repetitive statement? Why do we need break and continue statement. 7
- b) Write a program to generate all prime numbers from 1 to 200. 3
7. Write short notes on: (Any two) 2x5
  - a) SDLC
  - b) Storage Classes in C
  - c) String handling Function



# POKHARA UNIVERSITY

Level: Bachelor  
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Semester: Fall

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

*The figures in the margin indicate full marks.*

*Attempt all the questions.*

1. a) What do you mean by programming language? Discuss on machine language, assembly language and high-level language. 7  
b) Define algorithm and flowchart. Draw a flowchart to read 3 numbers from the user and find the smallest one. 8
2. a) What is an operator? Explain the conditional operator with suitable example. 7  
b) What are control statements? Differentiate between while and do while loops with suitable example. 8
3. a) Write a program to print the following pattern. 7  
1  
1 2  
1 2 3  
b) How can you initialize an one dimensional array? Write a program to search an element in one-dimensional array containing five integer elements. 3
4. a) Does a function return multiple values? When and how a function will return single or multiple values; illustrate with suitable examples. 8  
b) How arguments are passed by using call by value and call by references? Explain with examples. 7
5. a) Explain the relationship between arrays and pointers. How can a pointer variable be used to access and modify single-dimensional and multidimensional arrays? 7  
b) How do you define and use double indirection pointers, pointer to array and array of pointers? Give examples codes. 8
6. a) How do you declare and initialize array of structure variables? How is 8

structure different from Union? Give example codes.

- b) What are the different modes of opening a file? Write a program to create a file "hello.txt", write data into the file and finally read the data from the file

7

Write short notes on: (Any two)

2×5

- a) Dynamic Memory Management
- b) String Handling Functions
- c) Self-referential Structure

पुनम टेक्नॉलॉजी प्रोप्रायटी एंड कोटिंग्स प्राइवेट लिमिटेड  
नारायणगढ़ी, रातेद्वार-१८००११३३२  
NCIT College



# POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2016

Programme: BE

Full Marks: 100

Course: Programming in C

Pass Marks: 45

Time : 3hrs.

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

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*Attempt all the questions.*

1. a) What are functional difference between primary and secondary memory? Explain the function of control unit with the help of block diagram of digital computer. 3+2+1
- b) Define the role of flow chart in efficient program maintenance with its character. Also develop a flow chart to print the even numbers between 150 to 500. 3+4
2. a) What is an operator? Explain the arithmetic, relational, logical and assignment operators in C language. 2+5
- b) Explain entry controlled and exit controlled loops with example. Compare continue and break statements. 1+1
3. a) Why array is called static data type? Write a program to find diagonal elements of  $m \times n$  matrix. 2+5
- b) Define string. Explain the string handling function with suitable example. 2+5
4. a) List the major advantages of recursive function. Write a recursive program to generate the 10 terms Fibonacci sequence starting from 2. 2+6
- b) What do you mean by storage class? Define its types with suitable examples. 2+5
5. a) Write a program to sort the array using dynamic memory allocation. 3
- b) Differentiate pass by value and pass by reference with suitable example. 7
6. a) Write a program to create structure for the following data for student (RN, Name, phone, address and semester). Read the 10 students by user and write only those students whose semester is 1 in file "student.txt" 8



b) Differentiate structure and union. How the members of Nested Structure are accessed? Show it with example. 7

7. Write short notes on: (Any two) 2x5

- a) Void pointer
- b) Escape Sequence
- c) Go to statement.

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Time : 3hrs.

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

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*Attempt all the questions.*

1. a) What is programming language? Why is High Level Language (HLL) preferred to Low Level language (LLL)? 7  
b) What is the significance of algorithm and flowchart in programming? Write an algorithm and draw a neat flowchart to input a number and check it is palindrome number or not. [Note: Palindrome number remains same even after its reverse such as 989] 3
2. a) What is operator? Describe about the unary operator, binary operator and ternary operator with examples. 7  
b) Differentiate between while loop and do while loop. Write a program to print the sum of the digits of a number. 3
3. a) Why are functions used? Explain function call by value and call by reference with examples. 7  
b) Define function, function definition, function calling, function declaration with code example. 3
4. a) Define local variables and global variables. Explain different storage classes with examples. 7  
b) How dynamic memory allocation can be achieved? Explain with a suitable example. What are the advantages of dynamic memory allocation? 8
5. a) What do you mean by array? How can you initialize one dimensional array at compile time and at run time? Explain with suitable example. 7  
b) Use recursive function calls to evaluate:  
$$f(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!}$$
 3
6. a) What is menu driven structure explain with suitable programs. 7



- b) Why is file handling necessary in C programming? Write a program to input name, address, faculty, program and GPA (in maximum 4.0) of 500 students and store them in 'RESULT.DAT' data file and display the records of those students whose faculty is 'Engineering' and GPA > 3.5. 8

Write short notes on: (Any two) 2×5

- a) The Pointer arithmetic
- b) Differences between structure and union
- c) Testing and debugging

सुभाष चंद्र बोस स्मृति एण्ड फोर्टीफिकेशन समिति  
बालसुगरी, लखनऊ २२७०१२  
NCIT College

POKHARA UNIVERSITY

Level: Bachelor

Semester: Spring

Year : 2015

Programme: BE

Full Marks: 100

Course: Programming in C

Pass Marks: 45

Time : 3hrs.

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

*The figures in the margin indicate full marks.*

*Attempt all the questions.*

1. a) What is programming language? Differentiate between high level language and low level language. 7
- b) Write the significance of algorithm and flowchart in programming. 8  
Draw a neat flowchart to input a number and check it is prime number or not.
2. a) Describe the output generated by each of the following programs. 7

```
#include <stdio.h>
```

```
int a = 100, b = 200;
```

```
int funct1 (int c);
```

```
main ()
```

```
{
```

```
    int count, c;
```

```
    for (count = 1; count <= 10; ++count) {
```

```
        c = 4 * count;
```

```
        printf (" %d ", funct1 (c));
```

```
    }
```

```
}
```

```
funct1 (int x)
```

```
{
```

```
    int c;
```

```
    c = (x < 30)? (a - x) : (b + x);
```

```
    return(c);
```

```
}
```

- b) An electricity board charges according to the following rates.



For the first 100 units ----- Rs. 40 per unit

For the next 200 units ----- Rs. 50 per unit

Beyond 300 units ----- Rs. 60 per unit

All users are also charged 'meter charge', which is equal to Rs. 50.  
Write a complete C program to read the number of units consumed and print out the total charges.

3. a) What do you mean by array? How can you initialize one dimensional array at compile time and at run time? Explain with suitable example. 8
- b) Why are functions used? Explain function call by value and call by reference with examples. 7
4. a) What do you mean by dynamic memory allocation? Explain about memory leak? 7
- b) What is nested structure? Write a program to input the following records of any 50 employees using structure and display them properly. 8

Name	Address	Post	Salary	Date of Appointment		
				Month	Day	Year

5. a) What are the different file opening modes in C? Write a program to input name, address, registration no, faculty and academic year of admission in university of 'n' number of students of Pokhara University and append them in a data file called 'STUDENT.DAT'. Then display the records of those students by reading the records from 'STUDENT.DAT' data file who got admission in 2016. 8
- b) How dynamic memory allocation can be achieved? Explain with a suitable example. What are the advantages of dynamic memory allocation? 7
6. a) Use recursive function calls to evaluate: 8

$$f(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots$$

- b) What is 2-D array? Write a program in C to read the elements of a 3\*4 matrix and find the biggest and smallest element of the matrix. 7
7. Write short notes on: (Any two) 2\*5
- a) Pseudo code
- b) Self-referential structure
- c) Macro



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Semester: Fall

Year : 2015  
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*Attempt all the questions.*

1. a) What is a flowchart? Write an algorithm and draw a flowchart to display whether a number is prime or not. 7  
b) Why header files in C is included in program? Give reasons. Also list out different header files you know. Illustrate the program showing the use of header file. 8
2. a) Define operator in c. List out different types of operators used in c. Explain three of them with example. 7  
b) An electricity board charges according to the following rates 8  
For the first 100 units ----- Rs 40 Per Unit  
For the next 200 units ----- Rs 50 Per Unit  
For the Beyond 300 units ----- Rs 60 Per Unit  
All users are also charge meter charge, which is equal to Rs 50. Write a program to read number of units consumed and print out the total charges.
3. a) Write a program to read a matrix and find the sum of all the digits in its main diagonal. 7  
b) Define function prototype? Write a program to read an integer number and find the sum of its digits using recursive function. 8

OR

What is pre-processor directives? Differentiate between macro and function with describing necessary example.

4. a) What is pointer? Explain memory allocation in C programming. Why dynamic memory allocation is better? 7  
b) Write a program using pointers to read in an array of integers. Next add the elements in the array and display the sum on the screen. 8



- a) Define structure and union. Explain way of declaring and accessing member of them with suitable example. 7
- b) Write a program to read the name, author, and price of 500 books in a library from the file "library.dat". Now print the book name and price of those books whose price is above Rs. 300. 8
- a) What do you mean by nested structure? Write a program to explain nested structure. 5

- b) Find the output 5

```
void fun(int *p);
void main()
{
    int x=4;
    printf("%d\n",x);
    fun(&x);
    printf("%d\n",x);
}
fun(int *p)
{
    *p=*p/2+13;
}
```

- c) Differentiate between user defined and library functions with suitable examples. 5

7. Write short notes on: (Any two) 2×5

- a) Switch case statement.
- b) Binary and unary operators.
- c) File opening in C.

# POKHARA UNIVERSITY

Level: Bachelor

Semester: Spring

Year : 2014

Programme: BE

Full Marks: 100

Course: Programming in C

Pass Marks: 45

Time : 3hrs.

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

*The figures in the margin indicate full marks.*

*Attempt all the questions.*

1. a) With the help of block diagram of digital computer explain the function of control unit and Memory unit. 8  
b) What are rules for naming identifier? Why we need different data types in programming? Differentiate between local and global variables with suitable example. 7
2. a) What is the importance of documentation in programming? Write an algorithm and draw a flowchart to find and output all the roots of a quadratic equation, for non-zero coefficients. In case of errors program should report suitable error message. 8  
b) What do you mean by entry controlled and exit controlled loop? Explain different types of looping constructs available in C with suitable examples. 7
3. a) Why array is important in programming? How can you initialize different types of arrays? Explain 2-dimensional array in C. 7  
b) Define String. Write a program to read n employees names and display them in alphabetical order. 8
4. a) What is recursive function? Write a recursive program to generate the first 15 numbers of Fibonacci sequence. 7  
b) What do you mean by storage class? Define its types with suitable examples. 8
5. a) What are the advantages of function call-by-\* reference over call-by-value? How would you pass a variable by reference to a function? Give an example. 8  
b) What is Pointer? How does a pointer differ from an array? Explain dynamic memory allocation. 7



6. a) What is nested structure? Create a structure called book having member name, price, author and published date in day, month and year. Write a program to read 100 books information from the user and display those books having price is greater than 250. 8
- b) What is a significance of FILE pointer? Describe the different file opening modes in C. 7
7. Write short notes on: (Any two) 2×5
- a) Goto statement.
  - b) String handling functions.
  - c) unary operations.

# POKHARA UNIVERSITY

Level: Bachelor  
Programme: BE  
Course: Programming in C

Semester: Fall

Year : 2014  
Full Marks: 100  
Pass Marks: 45  
Time : 3hrs.

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

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*Attempt all the questions.*

1. a) What do you mean by programming language? Explain all types of programming language with examples. 2+5  
b) Discuss the significance of Algorithm and Flow chart in programming. Draw a flow chart for finding greatest digit for the supplied number by the user. 3+5
2. a) Define the following terms with suitable example 6
  - i. Statement
  - ii. Token
  - iii. Format specifier
- b) Explain break and continue statement with example 4
- c) What is nested loop? Write a program to generate Fibonacci series up to  $n^{\text{th}}$  term. 5
3. a) What is String? Write a program to sort n students name in alphabetical order. 8  
b) Write a program to read n number from keyboard and find the smallest and largest number using array. 7
4. a) Define prototype. Which method of function call you should prefer to swap two integer values illustrate with the help of program. 8  
b) Explain different types of storage classes available in C. Use examples to illustrate. 7
5. a) Write a program to sort (ascending order) n integer values in an array using pointer. 8  
b) What is a pointer variable? How memory of a variable can be initialized dynamically? Explain with example. 7
6. a) Define a structure called 'football' that will describe the following 8



information:

player name

country name

number of goal scored.

Using football, declare an array player with 50 elements and write a program to read the information about all the 50 players and print a country-wise list containing names of players with their number of goals scored.

- b) What is significance of file pointer in file handling? Consider a following structure

Roll. No.	Name	Address	Faculty	Date Of Birth		
				mm	dd	yy

Write a program to create "student.txt" file to store the above records for 100 students. Also display these records of students who are not from Pokhara.

7. Write short notes on: (Any two)

2×5

- a) Goto statement
- b) Pointer to Array
- c) Void pointer

# POKHARA UNIVERSITY

Level: Bachelor  
Programme: BE  
Course: Programming in C

Semester: Spring

Year : 2013  
Full Marks: 100  
Pass Marks: 45  
Time : 3hrs.

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

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*Attempt all the questions.*

1. a) What do you mean by Programming language? Explain different types of programming languages. 7  
b) What is the purpose of qualifiers register and volatile? Describe four basic data types. How could you extend the range of values they represent? 8
2. a) What do you mean by Algorithm and Flowchart? Explain the C compilation process in brief. 7  
b) Write a program to display the following menu: 8  
Menu
  - i. conversion of ASCII code to char
  - ii. to find sum of n natural numbers
  - iii. Exit from programand to perform task as per user's choice repeatedly until his/her Choice is to exit.
3. a) List different String handling functions in C. Write a program to check whether the given string is palindrome or not. (Palindrome is a word which reads same from left to right and right to left. For e.g. LIRIL, MADAM e.t.c.) 7  
b) What is an array? Why do we use array in programming language? Write a program to find sum of all elements of a 3 x 3 matrix. 8
4. a) Explain different types of storage classes in C. 8  
b) What is a recursive function? Write a recursive program to calculate factorial of a given number using recursive function. 7
5. a) Write a program using pointers to read in an array of integers and print its elements in reverse order. 5



b) Below are two different definitions of the function search().

5

i. `void search(int * m[], int x)`  
`{`  
`}`

ii. `void search(int * m, int x)`  
`{`  
`}`

Are they equivalent? Explain.

c) Write the output:

5

```
void main()
{
    int m[2];
    int *p=m;
    m[0]=100;
    m[1]=200;
    printf("%d %d",++*p,*p);
}
```

6. a) Given a structure of employee

8

Name	Address	Telephone	Salary	Year of joining		
	s	c	y	mm	dd	yy

Write a program to input data of 100 employee and display records of those employees living in "Pokhara."

b) What do you need file handling? Describe the different file opening modes.

7

7. Write short notes on: (Any Two)

2×2

a) Break and Continue Statement.

b) SDLC

c) Macros.

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Semester: Fall

Year : 2013

Programme: BE

Full Marks: 100

Course: Programming in C

Pass Marks: 45

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*Attempt all the questions.*

1. a) Define Programming Language. Differentiate between high level programming language and low level programming language. 7  
b) Mention the appropriate data type for storing following data. Also justify your answer in brief. 8
  - i. Distance jumped by a frog.
  - ii. A prime number between 5 and 555.
  - iii. Weight of your body.
  - iv. The examination symbol number of a student.
2. a) Describe the working of loop and while loop with flowcharts and examples. 8  
b) What is recursive function? Write a program to calculate the factorial of a given number using recursive function. 7
3. a) Write a program to find the sum of all prime numbers in a given array. The main function of your program should take the help of a user defined function that tests whether a given number is prime or not. 8  
b) Write a program to test, whether given two matrices are equal or not. 7
4. a) Write a program to insert a given character at the given array index of a given string. For example if the given string is "Gnesh", given character is 'a', and the given array index is 1, the resulting string should be "Ganesh". 8  
b) Differentiate between call by value and call by reference with examples. 7
5. a) What is memory leak? Write a program to print reverse elements of an array using Dynamic Memory Allocation. 8  
b) Does a function return single or multiple value? When and how a 7



function will return single or multiple value, illustrate with suitable examples.

6. a) What is a nested structure? Create a structure for the following data:

Roll. No.	Name	Address	Faculty	Date Of Birth		
				mm	d	Yr

And Write a Program to input 100 students and display the records of the students of "computer" faculty

- b) What are file opening modes? Write a Program to open a new file, read name, address and telephone number of 10 employees from the user and write to a file.

7. Write short notes on: (Any two)

- Pre-processor directive.
- Nested loop.
- String Handling Functions.