

POKHARA UNIVERSITY

Level: Bachelor	Semester: Spring	Year : 2013
Programme: BE		Full Marks: 100
Course: Programming in C		Pass Marks: 45
		Time : 3 hrs.

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? 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
- 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 character
 - ii. to find sum of n natural numbers
 - iii. Exit from program

and to perform task as per user's choice repeatedly until his/her
Choice is to exit.
- 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 etc.) 7
- b) What is an array? Why do we use array in programming language? 8
Write a program to find sum of all elements of a 3 x 3 matrix.
- 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
- 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()`.

```

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

Are they equivalent? Explain.

c) Write the output:

```

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

Name	Address	Telephone	Salary	Year of joining
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) 2x5
 - a) Break and Continue Statement.
 - b) SDLC
 - c) Macros.

POKHARA UNIVERSITY

Level: Bachelor Semester: Fall Year : 2013
 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) 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.
 - 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
			y	mm dd 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

7. Write short notes on: (Any two)

- a) Pre-processor directive.
- b) Nested loop.
- c) String Handling Functions.

8

7

2x5

POKHARA UNIVERSITY

Level: Bachelor Semester: Spring Year : 2014
 Programme: BE Full Marks: 100
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 Time : 3 hrs.

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 an 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

- 8
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. 7
 - b) What is a significance of FILE pointer? Describe the different file opening modes in C. 2×5
 7. Write short notes on: (Any two)
 - a) Goto statement.
 - b) String handling functions.
 - c) unary operations.

POKHARA UNIVERSITY

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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? 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^{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 7

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 : 2015

Full Marks: 100

Pass Marks: 45

Time : 3 hrs.

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. Draw a neat flowchart to input a number and check it is prime number or not. 8
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.

8

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
N.P. Thapa	Department of Computer Science					

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

POKHARA UNIVERSITY

Level: Bachelor

Programme: BE

Course: Programming in C

Semester: Fall

Year : 2015

Full Marks: 100

Pass Marks: 45

Time : 3 hrs.

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 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

5. 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
6. a) What do you mean by nested structure? Write a program to explain nested structure. 5
 b) Find the output
- ```
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 : 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.*

*The figures in the margin indicate full marks.*

*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] 8
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. 8
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. 8
4. a) Define local variables and global variables. Explain different storages 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: 8

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

6. a) What is menu driven structure explain with suitable programs. 7

- 8
- 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. 2×5
  7. Write short notes on: (Any two)
    - a) The Pointer arithmetic
    - b) Differences between structure and union
    - c) Testing and debugging

POKHARA UNIVERSITY

Level: Bachelor

Programme: BE

Course: Programming in C

Semester: Fall

Year : 2016

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) 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+3  
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 examples. Compare continue and break statements. 4+4
3. a) Why array is called static data type? Write a program to find sum of diagonal elements of  $m \times n$  matrix. 2+6  
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. 8  
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) 2×5
- a) Void pointer
  - b) Escape Sequence
  - c) Go to statement.

**POKHARA UNIVERSITY**

Level: Bachelor  
Programme: BE  
Course: Programming in C

Semester: Spring

Year : 2017  
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) | 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.   | 8   |
| 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. | 8   |
| 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.                                   | 8   |
| 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.                                     | 8   |
| 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.                                                          | 8   |
| 7.    | Write short notes on: (Any two)                                                                                       | 2×5 |
| a)    | SDLC                                                                                                                  |     |
| b)    | Storage Classes in C                                                                                                  |     |
| c)    | String handling Function                                                                                              |     |

**POKHARA UNIVERSITY**

Level: Bachelor

Programme: BE

Course: Programming in C

Semester: Fall

Year : 2017

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? 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 \n 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.  
1  
1 2  
1 2 3 8
- b) How can you initialize an one dimensional array? Write a program to search an element in one-dimensional array containing five integer elements. 8
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 info the fine and finally read the data from the file 7

7. Write short notes on: (Any two)  
a) Dynamic Memory Management  
b) String Handling Functions  
c) Self-referential Structure

2x5

**POKHARA UNIVERSITY**

Level: Bachelor      Semester: Spring      Year : 2018  
 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) Draw block diagram of a digital computer. Explain each component in brief.  
 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.
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.  
 b) Why you use "continue" and "break" statement in your program? Explain with suitable example program.
3. a) Differentiate pre-test and post-test loop. Write a program to generate Fibonacci numbers as per user's choice.  
 b) Write a program to read a one dimensional array, sort the numbers in ascending order and display sorted numbers.
4. a) Write a program to add two 3x3 matrix. Display the sum stored in third matrix.  
 b) List the major advantages of recursive function. Write a recursive program to generate the 10 terms Fibonacci sequence starting from 2.
5. a) What are the advantages of using dynamic memory allocation over static memory allocation? Explain with a suitable example program.  
 b) How can a function return multiple values? Explain with example.
6. a) Write a program to sort N numbers in an array dynamically.  
 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 Kathmandu.

2×5

7. Write short notes on (Any Two):

- a) Documentation
- b) void pointer
- c) Generation of Computers.

POKHARA UNIVERSITY

Level: Bachelor      Semester: Fall      Year : 2018  
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 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.
  - i. Reverse a number
  - ii. Find sum of individual digit
  - iii. Check for prime
  - iv. Exit 8
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. 7  
b) Write a program to create structure for the following data for cricket game. (Country name, Player name, playing type (e.g. batting, balling 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) 2x5
  - a) Program testing and debugging
  - b) Operator Precedence and Associativity
  - c) Software Development Life Cycle

**POKHARA UNIVERSITY**

Level: Bachelor      Semester: Spring      Year : 2019  
 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 do you mean by instructions and software? Explain various types of software. 7
- b) Differentiate between algorithm and flowchart. Write an algorithm and flowchart to find the number given by user is divisible by 2, 3 and 6 or not. 8
2. a) Define operator and operand. List the types of operators and explain any five of them. 7
- b) Write a recursive program to raise number X to power n i.e  $X^n$ . 8
3. a) Write a program to generate the following pattern by initializing the string at first 7

PROGRAMMING

PROGRAMMIN

PROGRAMMI

PROGRAMM

PROGRAM

PROGRA

PROGR

PROG

PRO

PR

P

- b) Explain the run time and compile time initialization of an array with examples. 8
4. a) Write a program to find the transpose of 4\*3 matrix. 7
- b) What do you mean by recursion function? What are the advantages and disadvantages of using recursive functions? Write a program to find where the number is prime or not using user defined function. 8

5. a) Differentiate between static memory allocation and Dynamic Memory Allocation? Explain with a suitable example program. 8
- b) Write a program to pass array element to a function using pointer. 7
6. a) Create a structure for the following data. 7

| Emp_id | Emp_Name | Address | Department | Date of Birth |
|--------|----------|---------|------------|---------------|
|        |          |         |            | mm dd yr      |

And also write a program to input 100 employee records and display whose Department is "Sales".

- 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.

7. Write short notes on: (Any two) 2x5
- Pre-processor directives
  - Union
  - Break and continue statements

## POKHARA UNIVERSITY

Level: Bachelor  
Programme: BE

Course: Programming in C

Semester: Fall

Year : 2019  
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) What is programming language? Explain about low level programming language and high level programming language. 7
- b) What is the role of algorithm in programming? Write down an algorithm to check if the given number is prime or not. 8

2. a) Which of the following are invalid variable name and why? 8
- |         |            |              |       |
|---------|------------|--------------|-------|
| Minimum | First.name | Row Total    | &name |
| Doubles | 3rd_row    | Column-total | float |

Describe the four-basic data-types along with their size and range.

- b) What is entry controlled and exit controlled loop? Write a program to print following pattern. 7

```

1 2 3 4 5
1 2 3 4
1 2 3
1 2
1

```

3. a) Write a recursive program to generate the Fibonacci series up to N terms. 7
- b) What is an array? Write a program to enter values in 3x3 order matrix and compute the sum of odd elements. 8
4. a) Explain any seven functions that are related to string. 7
- b) How can we return multiple values from a function? Explain with an appropriate example. 8
5. a) What is function prototype? Write a program to pass one dimensional array to a function and display that array in that called function. 8
- b) What are function call by value and call by reference? Explain with 7

suitable examples.

6. a) What is a pointer variable? How can memory of a variable be initialized dynamically? Explain with example. 7

- b) Create a structure named Employee with structure members name, eid, address and gender. Structure need to read information for 50 employees. Write all content into the file info.dat and while retrieving, display only the information of those employee whose address is "Kathmandu". 8

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

- a) Union in C
- b) Macros
- c) Get C() and put C()

# POKHARA UNIVERSITY

Level: Bachelor

Semester – Spring

Year: 2020

Program: BE

Full Marks: 70

Course: Programming in C

Pass Marks: 31.5

Time: 2 hrs.

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

*The figures in the margin indicate full marks.*

**Attempt all the questions.**

## Section - A: (5×10=50)

- Q. N. 1 Judge efficiency of algorithm and flowcharting over program development process. Draw a flowchart to find out the grade of student when the marks of four subjects are given. The method of assigning grade is as: 4+6

| Percentage                                 | Grade |
|--------------------------------------------|-------|
| More than or equal to 85                   | A     |
| Less than 85 and more than or equal to 70  | B     |
| Less than 70 and more than or equals to 55 | C     |
| Less than 55 and more than or equal to 45  | D     |
| Less than 45 and more than or equal to 32  | E     |
| Less than 32                               | F     |

- Q. N. 2 Arrays are static in nature, meaning they are of fixed size. This produces shortage or wastage of memory. Does C language offer some techniques to make them dynamic? Illustrate with suitable program. 10
- Q. N. 3 C language has some built-in functions in the header file string.h for string manipulation. Explain different types of string handling function with example. 10

## OR

Function supports code reusability. Do you agree with this statement? Support your answer with a suitable program.

- Q. N. 4 Difference between entry controlled loop and exit controlled with suitable example. WAP to find sum of n natural number using recursion. 5+5
- Q. N. 5 Discuss the role of file handling technique in C programming. An organization has a file named "staff.txt" that has 10 records of staffs having their id, name and salary. Using the concept of structure, you are required to write a program to ask the details of three more staffs and add them in the file. Also, finally you need to display all the records and the total salary paid by the organization. 3+7

## Section - B: (1×20=20)

- Q. N. 6 Design a menu driven program having following options: 4×5
1. Read a string and print it reversely.
  2. Input two nos. and perform as four function (+,-,\*,/) calculator
  3. Read the matrix of 4\*4 and find the largest element in the matrix.
  4. Exit.

Note: Use of separate function to each option entitles full marks.

## POKHARA UNIVERSITY

Level: Bachelor

Programme: BE

Course: Programming in C

Semester: Fall

Year : 2020

Full Marks: 100

Pass Marks: 45

Time : 3 hrs.

*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) Explain high level language and low level language. Briefly describe the structure of C program. 7
- b) Why algorithm and flowchart are used in programming? Draw a flowchart to find the sum of numbers between 50 to 500. 8
2. a) What are identifiers in C? Write the rules for naming identifiers. 7
- b) What are control statements? Explain all looping statements in C with examples. 8
3. a) Write a program to display sum of each row for a 3\*4 matrix. 7
- b) What are the various String Handling Functions? Write a program to check if a given string is palindrome or not. 8
4. a) List out the advantage and disadvantage of using recursive function. Write a program to find the sum of numbers from 1 to 50 using recursive function. 8
- b) Write a user-defined function to find the sum of elements of m\*n matrix and finally returns the sum to the calling function. 7
5. a) How does a function return multiple values using pointer? Illustrate with example. 7
- b) Explain about malloc(), calloc() and realloc() function with suitable example. 8
6. a) Compare union with structure. 7
- b) Why do we need structure? Write a program to input name, address, phone number, salary and department of 500 employees of a company and store them in "Employee.txt" file and display the records of those employees whose department is "Marketing" using concept of 8

structure.

7. Write short notes on: (Any two) 2x5
  - a) Call by value and call by reference
  - b) The switch statement
  - c) Basic Data type in C

## POKHARA UNIVERSITY

Level: Bachelor

Semester: Spring

Year : 2021

Programme: BE

Full Marks: 100

Course: Programming in C

Pass Marks: 45

Time : 3 hrs.

*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 software? What are the types of software? Explain. 7  
b) What are the properties of good algorithm? Write an algorithm and draw flowchart to find the sum of n natural numbers. 8
2. a) What are variables? Explain different types of data types in C. 7  
b) Write a program to print following pattern. 8  
  
1 2 3 4 5  
1 2 3 4  
1 2 3  
1 2  
1
3. a) Differentiate between entry and exit controlled loop with suitable program. 7  
b) What is an array? Write a program to enter values in 3\*3 order matrix and compute the sum of odd elements. 8
4. a) Define string and string handling functions with suitable examples. 7  
b) Why are functions important in programming? How are arguments passed to the function in C? 8
5. a) What is call by value and call by reference? Explain with suitable examples. 7  
b) In what ways Dynamic Memory Allocation is better than Static Memory Allocation? Explain various functions related to DMA. 8
6. a) What is pointer? Write a Program to read 'n' numbers and find third largest element among n numbers. 7  
b) Write a program to read the records of n students (name, roll no, grade and university) and store it into a file named student.txt and display the records of those students whose university is Pokhara University. 8
7. Write short notes on: (Any two) 2×5  
a) Accessing Nested Structure member  
b) Structure vs union  
c) SDLC

## POKHARA UNIVERSITY

Level: Bachelor  
Programme: BE  
Course: Programming in C

Semester: Fall

Year : 2021  
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) What are the different steps in problem solving using computer? Briefly explain each step. 8
- b) What is a variable? Explain different data types in C with examples. 7
2. a) What are the control statements? Differentiate between while and do while loops with suitable example. 8
- b) Write a program to print even numbers from 51 to 100. 7
3. a) Write a recursive program to generate the 10 terms of Fibonacci sequence starting from 0. 8
- b) Differentiate between function call by value and function call by reference with suitable examples. 7
4. a) What do you mean by <string.h>? List any 7 important string handling functions. Also write a program to print the following pattern. 8
- ```
*  
* *  
* * *  
* * * *
```
- b) Write a program to sort N elements of an integer array in ascending order. 7
5. a) Does a function return multiple values? When and how a function will return multiple values, illustrate with suitable examples. 7
- b) Write a program to pass the elements of an array to a function using a pointer. 8

6. a) Why do you need a structure? Explain in detail how a structure differs from an union with suitable programs. 7
- b) Write a program to read the name, author, and price of 200 books in a library and store the information into file "library.dat". Also print the book name and price of those books whose price is above Rs.350. 8
7. Write short notes on: (Any two) 2×5
- a) Static, local and global variable
 - b) Multidimensional Array
 - c) String Handling Functions

POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2022

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 the significance of flowchart and algorithm in programming? Write an algorithm and draw a flowchart to check whether the given number is a prime number or not. 7
- b) Why is C called a structured programming language? Compare and contrast between low level and high-level language. 8
2. a) What are variables? Explain different types of data types in C. 7
- b) Explain entry – controlled and exit- controlled loop with examples. 8
3. a) Briefly explain the working of switch statement with example. 7
- b) Define array. Write a program to add two matrices of size 2×3 . 8
4. a) Write a program to calculate a sum of diagonal elements in a $M \times N$ matrix. 7
- b) Write a program to find the sum of two numbers using a function with no return type but with arguments. 8
5. a) Write a program to find the factorial of a given positive number using a function. 8
- b) Explain dynamic memory allocation with example. 7
6. a) Given a structure 8

Name	Address	Telephone	Salary	Year of joining		
				mm	dd	yy

Write a program to input data of 50 employee and display records of those employees living in "Pokhara."

- b) Write a program to create a new file named "test.txt" and write some string in the file. 7
7. Write short notes on: (Any two) 2×5
 - a) Character array
 - b) Header files
 - c) Union

POKHARA UNIVERSITY

Level: Bachelor

Semester : Spring

Year : 2023

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 are the properties of a good algorithm? Write an algorithm and draw a neat flowchart to input a number and check whether it is even and divisible by 3. 8
- b) Write the rules of naming variables. How is a variable declared and initialized in compile time and run time? Explain with example. 7
2. a) How does else-if ladder work? Explain with its general syntax, flowchart and a simple program. 8
- b) Compute the total labor cost for building wall of 50 meter long, 0.2 meter wide and 7 meter tall. The length of a brick is 10cm, height is 8cm and width is 6cm. Cost of one brick join in 1.50 paisa.
(Assume the thickness of mortar is negligible.) 7
3. a) Write a program to find the sum of n terms of the series :
$$1+x+x^2+\dots\dots\dots+x^n$$
, by asking the values of n and x from user. 7
- b) What is the advantage of an array over a variable? Write a program to read 4×4 matrix, compute and print the sum of all elements. 8
4. a) What are the header files? Explain their roles in a program. 7
- b) What is a recursive function? Write a recursive function to generate the 10 terms of Fibonacci sequence starting from 0 as first term and 1 as second term. 8
5. a) Write a program to pass the elements of an array to a function using pointer and use the function to find the sum of the elements and print the sum. 7
- b) How is memory allocated dynamically in C? Explain with a simple program. 8

- a) Create a structure called student with data members name, rollno and college for 10 students. Display the name of the students who study at SoE. 8
- b) What are the different file opening modes? Explain the role of FILE pointer, fopen (), and fclose () functions with a simple program. 7

Write short notes on: (Any two) 2×5-

- a) Programming Languages
- b) String Functions
- c) Advantages of Functions

POKHARA UNIVERSITY

Level: Bachelor

Programme: BE/B.Arch

Course: Programming in C (Old)

Semester: Fall

Year : 2023

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) | Why programming language is necessary? Explain High level language and Low level language with their advantages and disadvantages. | 7 |
| b) | What is the importance of documentation in SDLC? Write an algorithm and draw a flowchart to find the middle number in between 3 integers. | 8 |
| 2. a) | What are identifiers in C? Write the rules for naming identifiers. | 7 |
| b) | Write a program to read a temperature of a day in Fahrenheit and print "Nice day" if temperature is greater than 60 but less than 80.
"Cold day" if temperature is 60 or lower.
"Hot day" if temperature is 80 or higher. | 8 |
| 3. a) | Write a program to enter the matrix of size 3×2 and generate new matrix after replacing all even elements by 0. | 8 |
| b) | Write a program to count the number of vowels from the string entered by the user. | 7 |
| 4. a) | Differentiate between call by value and call by reference with suitable examples. | 7 |
| b) | Define recursive function and list out their advantages. Write a program to generate Fibonacci series upto 25 th term using recursive function. | 8 |
| 5. a) | How does a function return multiple values using pointer? Illustrate with example. | 7 |
| b) | How dynamic memory allocation addressed the problem of static memory allocation? Explain with suitable examples. | 8 |
| 6. a) | Differentiate structure and union with suitable examples. Explain nested structure in brief. | 7 |
| b) | Create a structure called journal having a member name, price, author and pages. Create a file called "Library.docx" and store 100 journals. Now, print the records of journal which has pages less than 5. | 8 |

7. Write short notes on: (Any two)

- a) Debugging and testing
- b) Array of structure
- c) Self-referential structure

2×5

POKHARA UNIVERSITY

Level: Bachelor

Semester: Spring

Year : 2024

Programme: BE/B.Arch

Full Marks: 100

Course: Programming in C

Pass Marks: 45

Time : 3 hrs.

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) Explain about high level language and low level language. Also describe about types of computer software. 7
 - b) What are the properties of good algorithm? Write an algorithm and draw flowchart to find the sum of n natural numbers. 8
 2. a) Differentiate keywords and identifier with suitable examples. Which of the following are invalid variable names and why? 8
- | | | | |
|-----------|-------|-----------|--------------|
| Integer | float | lnum | last.name |
| first_num | &sum | row total | column_total |
- b) Differentiate between entry and exit controlled loop with suitable program. 7
 3. a) Let's consider the supermarket discount policy: the policy offers a 5% discount on the total bill to all customers, irrespective of their purchase amount. Additionally, female customers receive 10% discount if their total bill exceeds Rs. 5000. Write a C program to implement this discount policy and calculate the final bill after applying these discounts. 8
 - b) Write a program to display sum of each row of a 3*3 matrix. 7
 4. a) How does function returns multiple values? Explain with suitable example. 8
 - b) List out any two advantages and disadvantages of using recursive function. Write a program to generate Fibonacci series upto 35th term using recursive function. 7
 5. a) Write a program to sort the n numbers in an array using dynamic memory allocation. 7
 - b) What are different DMA functions in C Programming? Explain any two of them with suitable example. 8

6. a) Differentiate between union and structure. Write a program to read the records of n students (roll no., name, per, address) using structure and display the records of those student whose address in Chitwan. 7
- b) Why file handling is necessary? Consider the following structure. 8
- | RollNo | Name | Address | Program | Date of birth |
|--------|------|---------|---------|---------------|
| | | | | yy mm dd |
- Write a program to create a 'students.txt' file to store the records of 200 students and display the information of students who were born in 2004.
7. Write short notes on: (Any two) 2×5
- a) Debugging and testing
 - b) String handling functions
 - c) External vs global variable

POKHARA UNIVERSITY

Level: Bachelor	Semester: Fall	Year : 2023
Programme: BE		Full Marks: 100
Course: Programming in C (New)		Pass Marks: 45
		Time : 3 hrs.

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 a programming language? Explain all the generations of programming language. 7
b) Explain importance of algorithm and flowchart. Draw a flowchart to check if given year is leap year or not. 8
2. a) What are keywords? Explain types of operators based on number of operands with example program. 7
b) Electricity board charges according to following rules. 8

For first 100 units -----> Rs 100 (minimum charge)
For next 50 units -----> Rs 8.5 per unit
For next 100 units -----> Rs 9.5 per unit
For beyond 250 units -----> Rs 10.5 per unit

Additional charge: 13% tax and Rs 100 for maintenance.
Write a program to input total units consumed and display total charge.
3. a) What is control statement? Explain break, continue and goto control statements with example program. 7

OR
Explain for loop. WAP to convert decimal numbers to binary bits.
4. a) Write a program to input n elements in a 1D array and check if a given number is present in the array or not. If present, display the position of the number in array. 7
b) Define function with syntax and mention its advantages in POP. 8
Explain different storage classes in C programming.
5. a) What is recursive function? Write a program to find power of given number using recursion. 7

- b) What is dynamic memory allocation? Explain functions used in dynamic memory allocation with example. 8
6. a) Create structure named Student. Student has attributes name, address, date of birth and marks in percentage. Input the records for 'n' students and display information of the students who have scored above 75 percentage. 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
- OR**
- Write a program to create a structure Teacher with attributes name, address, faculty and salary. Input records of 50 Teachers and store them in "Teacher.txt" file and display the records of teachers whose address is "Gorkha"
7. Write short notes on: (Any two) 2×5
- a) Data types
 - b) Call by reference using pointer
 - c) self-referential structure

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Programming in C (New)

Semester: Spring

Year : 2024
Full Marks: 100
Pass Marks: 45
Time : 3 hrs.

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 is C called structured programming language? Which programming language do you prefer to develop a system software and application software? Explain with reasons. 7 |
| b) Define an algorithm. Draw a flowchart to find the factorial of a given number. 8 |
| 2. a) What are formatted input/output functions? Explain with examples. 7 |
| b) Define datatypes. Explain basic data types with examples. 8 |
| 3. a) Explain any two conditional statements in detail with syntax and flowchart. 8 |

OR

- | |
|--|
| Write a program to find the n^{th} term of a Fibonacci series 0, 1, 1, 2, 3, 5, 7 |
| b) Write a program that prompts the user to enter n numbers from the keyboard, find the sum of even numbers and display the sum. 7 |
| 4. a) What are the advantages of using array in programming? Explain different ways to initialize one dimensional array with examples. 8 |

OR

- | |
|---|
| Write a program to find the product of two $m \times n$ and $n \times m$ matrices and display the resulted matrix. 7 |
| b) Explain Formal arguments and Actual arguments with an example program. 7 |
| 5. a) Using user defined function write a program to input n numbers in an one dimensional array and find the average of the numbers. 7 |
| b) What do you understand by pointer? Explain pointer arithmetic in brief. 8 |

6. a) Create a structure with the following data fields: 7
- | Emp_id | Name | Address | Salary | DOB | | |
|--------|------|---------|--------|-----|----|----|
| | | | | mm | dd | yy |
- Input records of 100 employee and display the record of those employee whose address is "Kathmandu".
- b) Why do we need file pointer? Explain different file opening modes. 8
7. Write short notes on: (Any two) 2×5
- a) Storage Class
 - b) Recursive function
 - c) malloc(), calloc() and free()