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POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2020

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) 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**) 2×5
- 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 : 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 |

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| 4. | b) Explain the run time and compile time initialization of an array with examples. | 8 |
| | 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) 2×5

- a) Pre-processor directives
b) Union
c) 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) 2x5
- a) Union in C
 - b) Macros
 - c) Get C() and put C()

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):

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

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.

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. 3
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. 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? 8
- 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. Write short notes on: (Any two)

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

2×5

POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2016

Programme: BE/Architecture

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 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+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. 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)

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

2x5

POKHARA UNIVERSITY

Level: Bachelor
 Programme: BE
 Course: Programming in C

Semester: Spring

Year : 2016
 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.

- 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

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 $GPA > 3.5$.

7.

Write short notes on: (Any two)

a) The Pointer arithmetic

b) Differences between structure and union

c) Testing and debugging

2×5

8

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 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.

# PO KHARA UNIVERSITY

Level: Bachelor  
 Programme: BE  
 Course: Programming in C

Semester: Spring

Year : 2015  
 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? 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 functl (int c);
```

```
main ()
```

```
{
```

```
 int count, c;
```

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

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

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

```
}
```

```
 functl (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 |
|      |         |      |        |                     |     |      |

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: Spring

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.*

( ) *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

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.*

*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
  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 program
- and 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  $3 \times 3$  matrix. 8
  4. a) Explain different types of storage classes in C. 7
  - b) What is a recursive function? Write a recursive program to calculate factorial of a given number using recursive function. 5
  5. a) Write a program using pointers to read in an array of integers and print its elements in reverse order. 1

- 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.

5

- 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 |
|------|---------|-----------|--------|-----------------|
|      | s       | e         | y      | mm dd yy        |

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

8

- 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.