

# 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.

- 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
- 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
- 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
- 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
- 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
- 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 ~~New~~  
Structure are accessed? Show it with example.

i. Write short notes on: (Any two)

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

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.  
 b) Why are functions used? Explain function call by value and call by reference with examples.
4. a) What do you mean by dynamic memory allocation? Explain about memory leak?  
 b) What is nested structure? Write a program to input the following records of any 50 employees using structure and display them properly.

Name	Address	Post	Salary	Date of Appointment		
				Month	Day	Year

- 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.
- b) How dynamic memory allocation can be achieved? Explain with a suitable example. What are the advantages of dynamic memory allocation?
- a) Use recursive function calls to evaluate:

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

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

**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.
2. a) Describe the output generated by each of the following programs.

```
#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.

- 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

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: Fall

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 a flowchart? Write an algorithm and draw a flowchart to display whether a number is prime or not.
  - 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.
2.
  - a) Define operator in c. List out different types of operators used in c. Explain three of them with example.
  - 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  
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.
  - b) Define function prototype? Write a program to read an integer number and find the sum of its digits using recursive function.

**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?
    - 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.

- 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

Write short notes on: (Any two)

- a) Goto statement. 2×5
- b) String handling functions.
- c) Unary operations.

# 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.  
b) What are rules for naming identifier? Why we need different data types in programming? Differentiate between local and global variables with suitable example.
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.  
b) What do you mean by entry controlled an exit controlled loop? Explain different types of looping constructs available in C with suitable examples.
3. a) Why array is important in programming? How can you initialize different types of arrays? Explain 2-dimensional array in C.  
b) Define String. Write a program to read n employees names and display them in alphabetical order.
4. a) What is recursive function? Write a recursive program to generate the first 15 numbers of Fibonacci sequence.  
b) What do you mean by storage class? Define its types with suitable examples.
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.  
b) What is Pointer? How does a pointer differ from an array? Explain dynamic memory allocation.

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.

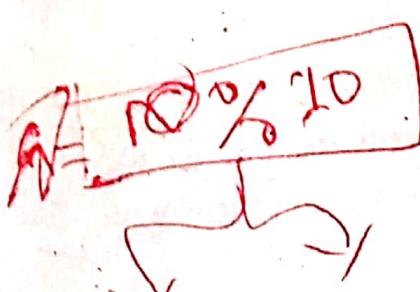
Write short notes on: (Any two) 2x5

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

$$\begin{array}{l} \cancel{678} = 9 \\ \cancel{678} = 8 \\ \cancel{678} = 7 \end{array}$$

$$\begin{array}{l} \cancel{678} = 8 \rightarrow \\ \cancel{10} \end{array}$$

$$\begin{array}{l} \cancel{67} = 7 \rightarrow \\ \cancel{10} \\ \cancel{26} \rightarrow \end{array}$$



# POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2014

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 all types of programming language with examples.  
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.
2. a) Define the following terms with suitable example
  - i. Statement
  - ii. Token
  - iii. Format specifier  
b) Explain break and continue statement with example  
c) What is nested loop? Write a program to generate Fibonacci series up to n<sup>th</sup> term.
3. a) What is String? Write a program to sort n students name in alphabetical order.  
b) Write a program to read n number from keyboard and find the smallest and largest number using array.
4. a) Define prototype. Which method of function call you should prefer to swap two integer values illustrate with the help of program.  
b) Explain different types of storage classes available in C. Use examples to illustrate.
5. a) Write a program to sort (ascending order) n integer values in an array using pointer.  
b) What is a pointer variable? How memory of a variable can be initialized dynamically? Explain with example.
6. a) Define a structure called 'football' that will describe the following

Q) 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);
```

```
}
```

a) Given a structure of employee

8

| 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."

7

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

2x5

Write short notes on: (Any Two)

a) Break and Continue Statement.

b) SDLC

c) Macros.

# POKHARA UNIVERSITY

Level: Bachelor

Semester: Spring

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) What do you mean by Programming language? Explain different types of programming languages.
  - 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?
2.
  - a) What do you mean by Algorithm and Flowchart? Explain the C compilation process in brief.
  - b) Write a program to display the following menu:  
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.)
  - 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.
4.
  - a) Explain different types of storage classes in C.
  - b) What is a recursive function? Write a recursive program to calculate factorial of a given number using recursive function.
5.
  - a) Write a program using pointers to read in an array of integers and print its elements in reverse order.

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

- a) What is a nested structure? Create a structure for the following data: 8

| 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) 2x5

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

# POKHARA UNIVERSITY

Level: Bachelor  
Programme: BE  
Course: Programming in C

Semester: Fall

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) Define Programming Language. Differentiate between high level programming language and low level programming language.  
b) Mention the appropriate data type for storing following data. Also justify your answer in brief.
  - i. Distance jumped by a frog. *Ans*
  - ii. A prime number between 5 and 555. *Ans*
  - iii. Weight of your body. *Ans*
  - iv. The examination symbol number of a student.
2. a) Describe the working of loop and while loop with flowcharts and examples.  
b) What is recursive function? Write a program to calculate the factorial of a given number using recursive function.
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.  
b) Write a program to test, whether given two matrices are equal or not.
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".  
b) Differentiate between call by value and call by reference with examples.
5. a) What is memory leak? Write a program to print reverse elements of an array using Dynamic Memory Allocation.  
b) Does a function return single or multiple value? When and how a

```
    strcat(str1,str);
    printf("\n%es",str1);
```

```
    strrev(str1);
    printf("\n%es",str1);
```

```
}
```

a) Describe the different types of decision control statements used in C programming with their syntax. 8

b) An electricity board charges according to the following rates: 7

For the first 20 units ----- Rs 80

For the next 80 units ----- Rs 7.5 per unit

For the next 100 units ----- Rs 8.5 per unit

For the Beyond 200 units ----- Rs 9.5 per unit

and Tax 15% in total amount is charged to all users. Write a program to read number of units consumed and print out the total charges.

a) What is array? Write a program to read values of  $3 \times 3$  order matrix then compute the sum of even elements. 7

b) What do you mean by function in C programming? Distinguish between function call by value and function call by reference with an example. 8

a) What is pointer in C? Can a function return more than one value? Justify your answer with an example. 8

b) Write a program with user defined function using pointer to convert all the uppercase to lower case and vice-versa in a string given by the user. 7

OR

Write a program to print the Fibonacci series up to  $N^{\text{th}}$  term using recursive function.

The Fibonacci series is 0 1 1 2 3 5 ...

7

a) Compare and contrast structure with union. Write a program enlightening how to access the nested structure components. 8

b) Write a program by using structure that includes AccNo, CName, CAddress, CTelNo and Balance for 100 customers of ABC financial institution and store in account.txt file and finally display the information of the customers who have the balance greater than Rs 10000. 7

2x5

Write short notes on any two:

a) Macros

b) String functions

c) Global versus local variable

d) File opening modes

**POKHARA UNIVERSITY**

Level: Bachelor

Semester - Fall

Year : 2012

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? Describe Low Level Language (LLL) and High Level Language (HLL) with examples. 7

**OR**

Explain briefly the various generations of computers with example.

- b) Define Algorithm and Flowchart. Draw a Flowchart to read 3 numbers from the user and find the smallest one. 8

2. a) Define the terms operators, variable and constant with example. Explain the necessary rules to define the variables name in C programming. 7

- b) What will be the output after executing the following Codes (assume necessary header files):

i) void main()

```

int x=10,y=20,z=5,i;
i=x*(++y+z++)%3+y/x*2-5;
x+=z;
y-=z;
x++;
z+=10;
z--;
printf("x=%d\ny=%d\nz=%d",x,y,z);
printf("\ni=%d",i);
    
```

ii) void main()

```

char str[20]={"University"};
char str1[20];
strcpy(str1,"Pokhara");
printf("\n%s",str1);
strcat(str1," ");
    
```

|      |         |           |        |                 |    |    |
|------|---------|-----------|--------|-----------------|----|----|
| Name | Address | Telephone | Salary | Year of joining |    |    |
|      |         |           |        | mm              | dd | yy |

Write a program to input data of 100 employee to a file and display records of those employees living in "Kathmandu." 4-

- b) Print the following pattern using a C program. Take the string as an input from the user. Write a generic program to accept string of any length.

Example pattern

If the user input is NEPAL than the output should be as follows:

```

1 N
2 N E
3 N E P
4 N E P A
5 N E P A L

```

Write short notes on any two: 2>

- a) Functions related to graphics
- b) Pointer arithmetic
- c) Decision control mechanism

only output will not gain marks if not supported by proper tracing.

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

fun(int p);
void main()
{
    int x=4, y;
    clrscr();
    printf("%d\n", x);
    y=fun(x);
    printf("y=%d\n", y);
    getch();
}

fun(int p)
{
    return(2*p/12+13);
}
```

OR

- ✓ Describe 'function call by values' with suitable example. 5
- ✓ 3. a) Define recursive function and write a program to calculate factorial value of given number using recursive function. 8
- ✓ b) Write a program to find the sum and average of elements of a  $3 \times 3$  matrix. 7
- ✓ 4. a) Define the term string. Write a C program to read a string and display only vowels of that string. 7
- ✓ b) What do you mean by pointer? How can you return multiple values from functions using pointers? Discuss with example. 8
- ✓ 5. a) Is there any way to allocate the memory during the program execution? If yes, give the explanation with example of such possibility. 8
- ✓ b) Write a program to create a structure named student with members as Name (char array), roll(int), gender(char). Store details of 10 students and then search and display all students whose roll numbers are even. 7
- ✓ 6. a) Given a structure:

# POKHARA UNIVERSITY

Level: Bachelor

Semester – Spring

Year : 2011

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.

- a) Define algorithm, flowchart and pseudocode. Write an algorithm and then draw a flowchart for the following: 8  
Read two numbers from the user (say A and B). If A is less than B then add them otherwise subtract them and store the result. Finally, if the result is negative, then make it positive.
- b) What are different data types used in C? Explain. 7

OR

What are variables and constants? Explain with examples. What are the rules to defining identifiers? ?

- a) Write the structure of do-while loop and show how it works with an appropriate flowchart. 5
- b) Trace the output of the following source code properly. Presenting only output will not gain marks if not supported by proper tracing. 5

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j;
    clrscr();
    for (i=43;i<=57;i+=5)
    {
        printf(" i=%d\t %d\n",i,50+i);
    }
    getch();
}
```

- c) Trace the output of the following source code properly. Presenting