

**P.E.S. College of Engineering, Mandya - 571 401***(An Autonomous Institution affiliated to VTU, Belagavi)***First Semester, B.E. - Semester End Examination; Dec. - 2019****C and Basics of Python Programming****(Common to All Branches)***Time: 3 hrs**Max. Marks: 100***Note: i) PART - A** is compulsory. **Two** marks for each question.**ii) PART - B:** Answer any **Two** sub questions (from a, b, c) for Maximum of **18 marks** from each unit.

Q. No.	Questions	Marks
<b>I : PART - A</b>		
I a.	Cover the following expression into C expression: $\text{Side} = \sqrt{a^2 + b^2 - 2ab \cos(x)}$	2
b.	Write the output of the following statements by assuming: float y = 98.7654; printf (“% 7.2f”, y); printf (“ % 10.2e”, y) ; printf (“ % 11.4e”, - y) ; printf (“ % - 10.2e”, y) ;	2
c.	What will be the value of x when the following code segment is executed? int x = 10, y = 15; x = (x < y)? (y + x) : ( y - x);	2
d.	Differentiate between local variable and global variable.	2
e.	What is the output of the following program: i = 0; while( i < 3) print i; i++; print i + 1;	2
<b>II : PART - B</b>		
<b>UNIT - I</b>		
1 a.	Define algorithm. Write an algorithm to generate n <sup>th</sup> Fibonacci series.	9
b.	Explain the following with suitable example: i) Arithmetic operators ii) Bitwise operators iii) Conditional operators	9

c.	List out the rules used to define a variable. Write a flowchart to find the largest of 3 numbers.	9
<b>UNIT - II</b>		<b>18</b>
2 a.	Explain formatted input and output functions with correct syntax and example. Write a C program to read temperature in Fahrenheit and convert the same into Celsius.	9
b.	Write the syntax of else-if ladder. Write a program to find the roots of a quadratic equation.	9
c.	With general syntax, explain switch statement. Write a program to design the simple calculator for operator +, -, * and /.	9
<b>UNIT - III</b>		<b>18</b>
3 a.	i) Write a C program to find the factorial of a given number.	6
	ii) Write a C program to sort N floating point numbers using Bubble sort.	8
b.	i) Explain different ways of initializing, 2-D array.	6
	ii) Write a program to find the product of two of order (m×m) matrices.	8
c.	Compare while and do while loops with their general syntax.	4
<b>UNIT - IV</b>		<b>18</b>
4 a.	i) With correct syntax, explain different types of functions and with example.	14
	ii) Write a user defined functions to perform linear search on an array of size N.	14
b.	i) Define a structure called student with the data member's student-id, name and marks1, marks2 and marks3 of 3 tests. Write a program to compute the average of 3 test marks for 5 different students.	14
	ii) Write a program to copy the string without using built-in function.	
c.	Differentiate between structure and union.	4
<b>UNIT - V</b>		<b>18</b>
5 a.	List and explain the features of python.	9
b.	Write a python program to check the whether the given integer is a palindrome or not.	9
c.	Write a python program to display first <i>n</i> prime number.	9

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