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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

First Semester, B.E. - Semester End Examination; April - 2021

C and Basics of Python Programming

(Common to all Branches)

Time: 3 hrs

Max. Marks: 100

Course Outcomes

The Students will be able to:

CO1: Understand and Apply the knowledge of program construct in solving a problem.

CO2: Analyze the given scenario and write the suitable pseudocode.

CO3: Design and Develop solution to a real time problem.

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	BL	COs	POs
	I : PART - A	10			
I a.	What is the order of precedence and associativity of arithmetic operators and logical operators?	2			
b.	Write C statement using ternary operator to find the greatest of three numbers.	2			
c.	What output is obtained from the given program? Justify your answer. <pre>int main() { int i = 3; for (i--; i < 7; i = 7) printf("%d", i++); return 0; }</pre>	2			
d.	List string handling function. What is the output of the following program? <pre>void main() { char s[] = "cricket"; int x = 1, y; y = x + + + + + x; printf("% c", s[+ + y]); }</pre>	2			
e.	How many numbers will be printed for the python code given below? Justify. <pre>i = 10 while true: print (i) i = i-1 if (i <= 7): break;</pre>	2			

II : PART - B**90****UNIT - I****18**

- 1 a. List the symbols used in flowchart. Also write the flowchart to find the roots of a quadratic equation. 9
- b. Explain with an example the following operators:
- i) Logical operator 9
 - ii) Relational operator
 - iii) Increment and Decrement operator
- c. Name and explain the basic data types in C. Also give the various modifiers of basic data types. 9

UNIT - II**18**

- 2 a. Explain formatted input and output statement along with an example. Write a program that prompts the users to enter a character (O, A, B, C, F). Then using switch construct display outstanding, very good, good, average and fail respectively. 9
- b. Explain with syntax nested if statement. Write a program to accept two numbers, each of three digits namely num1 and num2 and perform the following operation as shown below: 9
- if num1 = num 2 add the numbers
 - if num1 > num 2 subtract the numbers
 - if num1 < num 2 multiply the numbers
- c. Differentiate between break and continue statement. Write a program to check whether the character entered is vowel or not. 9

UNIT - III**18**

- 3 a. Write an equivalent do while and while construct for the statement given below; 9
- ```
for (i = 0; i <= j; i++)
printf("good luck \n");
```
- Write a program to reverse the given number and also find the sum of all the digits of a number.
- b. Accept an unordered array of N numbers. Write a program to sort the given array and print the 2<sup>nd</sup> largest number. 9
- c. Write a program to accept two matrix A and B and the operator + and -. Based on the operator, perform the operation on two matrix. 9
- For other operator your program must display "invalid operator"

**UNIT - IV****18**

- 4 a. Explain string input/output function. Write a program to reverse the string without using string handling function. 9
- b. Explain the elements of user defined function. Also write C program to swap two number using function, 9
- c. Create a structure namely point with data members as  $x$  and  $y$  coordinates. Using this structure, write a program to check in which quadrant the given point lies. 9

**UNIT - V****18**

- 5 a. What is type conversion? List and explain the various type functions for type conversion in python. 9
- b. List the rules for variables. Write a program that prompt the user to enter two numbers  $x$  and  $y$ . The program then calculates and display  $x^y$ . 9
- c. Explain while syntax with an example. Write python program to evaluate the following series: 9

$$\frac{1^2}{1} + \frac{2^2}{2} + \frac{3^2}{3} + \text{-----} + \frac{n^2}{n}$$

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