



COLLEGE OF ENGINEERING, PUNE

(An Autonomous Institute of Government of Maharashtra.)

End Semester Examination

(CT-19001) Programming for Problem Solving

Course: B.Tech , Semester II

Branch: First Year

Academic Year: 2021-2022

Max.Marks:40

Duration: 2 Hours

Date: 01/09/2022

Instructions:

Student MIS
No.

1 1 2 1 1 0 0 5 6

1. Figures to the right indicate the full marks.
2. Mobile phones and programmable calculators are strictly prohibited.
3. Writing anything on question paper is not allowed.
4. Exchange/Sharing of stationery, calculator etc. not allowed.
5. Write your MIS Number on Question Paper

QueNo.	Question	Marks	CO
Q 1 a)	Write an algorithm and draw a flowchart that calculates salary of an employee. Prompt the user to enter the Basic Salary, HRA, TA and DA. Add these components to calculate the Gross Salary. Also deduct 10% salary from the Gross Salary to be paid as tax.	4	2
b)	What will be written in the text file, <code>file=open("coep.txt","a")</code> ? 1) <code>file.write("CoEP" + "University" + "Pune")</code> 2) <code>file.write(str(len("CoEPUniversity")))</code> 3) <code>file.write("abcdefabcd".replace('c','b'))</code> 4) <code>file.write("Hello".lower())</code>	4	1,4
c)	Write a program to print the following pattern. 1 2 2 3 3 3 4 4 4 4 5 5 5 5 5	5	1,3
Q 2 a)	Write a program for the following i) to find the sum of the digits of a given number using while loop (e.g. 1234, sum=1+2+3+4=10) ii) to display the reverse of the entered number using for loop(e.g. 1234, reverse=4321)	5	3
b)	Differentiate for loop and while loop with example	4	3
c)	Write a program to list Fibonacci sequence from 1 to 30	4	3
Q 3 a)	Write a program to find and print the diameter, circumference and area of a circle. Use the following function declarations. <code>getDiameter(radius)</code> <code>getCircumference(radius)</code> <code>getArea(radius)</code>	4	1,4

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| b) Iteration and recursion are both techniques that you can use for implementing solutions in a programming language. Compare and contrast these two techniques with help of an example. | 5 | 2,3 |
| c) Convert the number given one number system to other. Write down all the steps of conversion | 5 | 3 |
| i) Convert the number 5062_{10} to the binary system. | | |
| ii) Convert 159_{10} to the octal number system. | | |
| iii) Convert 380_{10} to the hexadecimal number system. | | |
| iv) Convert the binary number 11001011_2 to the decimal number system. | | |
| v) Convert the octal number 714_8 to the decimal number. | | |

*****Best Of Luck*****