

BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT

(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

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Course Code

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First/Second Semester B.E. Degree Examinations, September/October 2022**PROBLEM SOLVING THROUGH C PROGRAMMING**

(Common to all Branches)

Duration: 3 hrs

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.**2. Missing data, if any, may be suitably assumed*

Q. No	Question	Marks	(RBTL:CO:PI)
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Module - 1

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|---|---|--|----|---------------|
| 1 | a | What is a computer? Explain different types of computers. | 08 | (1:1 : 1.4.1) |
| | b | Distinguish between compilers and interpreters. | 06 | (2:1 : 2.6.4) |
| | c | Discuss with the help of an algorithm to compute area and circumference of a circle. | 06 | (2:1 : 3.6.2) |

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|---|---|--|----|---------------|
| 2 | a | Explain the generations of computers. | 08 | (2:1 : 1.4.1) |
| | b | Distinguish between system software and application software. | 06 | (2:1 : 2.6.4) |
| | c | Draw a flow chart to compute area and perimeter of a triangle. | 06 | (1: 1: 3.6.2) |

Module - 2

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|---|---|--|----|---------------|
| 3 | a | Explain the general structure of 'C' program with an example. | 08 | (2:2 : 2.5.2) |
| | b | What is a token? Explain the different types of tokens available in 'C' language. | 06 | (2:2 : 1.4.1) |
| | c | Demonstrate a 'C' program to swap two numbers without using third variable using arithmetic operators. | 06 | (1:2: 3.6.2) |

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| 4 | a | List different types of operators in 'C' and explain any <i>four</i> types in detail. | 08 | (2:2 : 1.4.1) |
| | b | Explain the steps involved in compiling and executing any 'C' program. | 06 | (2:2 : 2.5.2) |
| | c | Write a 'C' program to find the largest of three numbers using conditional operator. | 06 | (1:2: 3.6.2) |

Module-3

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|---|---|---|----|---------------|
| 5 | a | Explain if, if-else, nested if-else and if-else-if with examples and syntax. | 08 | (2:3 : 2.5.2) |
| | b | Distinguish between while, do-while and for loops in 'C'. | 06 | (2:3 : 2.5.2) |
| | c | Demonstrate with the help of 'C' program to find the reverse of a <i>four-digit</i> integer number NUM and check whether it is PALINDROME or NOT. | 06 | (3:3: 3.6.2) |

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| 6 | a | Explain different types of looping statements in 'C' with syntax. | 08 | (2:3 : 2.5.2) |
| | b | Demonstrate with an example program the use of <i>break</i> and <i>continue</i> statements in 'C'. | 06 | (3:3 : 3.6.2) |
| | c | Illustrate with the help of 'C' program to print half pyramid of alphabets using nested <i>for loop</i> as shown below: | 06 | (3:3 : 3.6.2) |

A
A B
A B C
A B C D
A B C D E

Module-4

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|---|---|--|----|---------------|
| 7 | a | Define array. Explain the declaration and initialization of single dimension array with example. | 06 | (2:4 : 1.4.1) |
| | b | What are C functions? Explain with an example parameter passing techniques available in 'C'. | 06 | (2:4 : 2.5.2) |
| | c | Demonstrate with the help of a 'C' program to implement string manipulation function (<i>length, copy, compare, concatenation</i>) without using built-in functions. | 08 | (3:4 : 3.6.2) |

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| 8 | a | What is a string? Explain any <i>five</i> string manipulation library functions in 'C' with their syntax. | 06 | (2:4 : 2.5.2) |
| | b | What is recursion? Discuss with a 'C' program to generate the Fibonacci series using recursion. | 06 | (2:4 : 3.6.2) |
| | c | Illustrate with the help of a 'C' program that reads 'N' integer numbers and arrange them in ascending order using <i>Bubble Sort</i> technique. | 08 | (3:4 : 3.6.2) |

Module-5

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| 9 | a | What is a structure? Explain the syntax of structure declaration and initialization with example. | 08 | (2:4 : 2.5.2) |
| | b | Develop a <u>Modular</u> program using structures to perform the following tasks:
i) Read Marks of five subjects for N number of students
ii) Calculate the Average Marks scored in each subject
iii) Find number of students scored above and below average marks. | 12 | (3:5 : 3.6.2) |

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|----|---|--|----|---------------|
| 10 | a | Explain different categories of pre-processor directives used in 'C' programming. | 08 | (2:4 : 2.5.2) |
| | b | Apply the modular programming construct using files to perform the following tasks:
i) To find the sum of integer elements
ii) To find the mean of elements
iii) To find the standard deviation | 12 | (3:5 : 3.6.2) |
