**CYCLE TEST – I**

**Academic Year: 2023-2024 (ODD Semester)**

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| --- |
| **INSTRUCTIONS (Please READ) :**   * **MOBILE PHONES ARE STRICTLY NOT PERMITTED** * **Please DO NOT WRITE anything in the Question Paper (Except Reg. No.)** * **Rough Work is NOT PERMITTED to do in Question Paper. You can use last page of your answer Booklet for doing Rough Work.** * **Marking like .(dot), Tick mark (√ ) etc. is NOT PERMITTED in Question Paper. This will lead to Malpractice.** * **Discussion with Neighbors leads to MALPRACTICE, which results in ‘0’ Mark.** * **DO NOT BORROW anything (Like Calculator, Pen, Pencil, Eraser etc.) from others.** * **Follow Dress Code** * **Question Paper should be submitted along with Answer Booklet.** |

**Class: I Yr/ I Sem/B.Tech (SoC - All Branches) Max. Marks: 25**

**Date: 05/10/2023 Duration: 50 minutes**

**Course Code and Title: 21CSS101J: Programming for Problem Solving**

**Course Learning Rationale (CLR):**

**CLR-1:** Think and evolve with a logic to construct an algorithm and pseudocode that can be converted into a program.

**CLR-2:** Utilize the appropriate operators and control statements to solve engineering problems

**Course Learning Outcomes (CLO/CO):**

**CLO-1:** To solve problems through computer programming. Express the basic data types and variables in C

**CLO-2:** Use appropriate data types in simple data processing applications.

**COURSE ARTICULATION MATRIX (CAM)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| **CLO1/CO1** | **2** | **3** |  |  |  |  |  |  |  |  |  |  |
| **CLO1/CO2** | **2** | **3** |  |  |  |  |  |  |  |  |  |  |

**Part A ( 3\*5=15 Marks) [Answer ANY 3 questions]**

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| --- | --- | --- | --- | --- | --- | --- |
| **Q.No** | **Question** | **Marks** | **CO** | **PO** | **BL** | **PI Code** |
| 1 | Illustrate primary data types with examples. | 5 | 1 | 2 | 2 | 2.5.2 |
| 2 | Differentiate L-value and R-value in an expression. Explain the same in a C program which finds the remainder of two integers. | 5 | 1 | 2 | 2 | 2.5.2 |
| 3 | Elucidate the use of *‘switch…case’* statements with an appropriate example. | 5 | 2 | 2 | 2 | 2.5.2 |
| 4 | Amit is a Research Scholar who is working on lake dynamics study using Digital Image Processing of satellite images. He has collected many LANDSAT images from 1977 to 1981 to perform his research work as given in the above table. Can you help Amit to print the year in which the maximum number of images are collected using the C program? | 5 | 2 | 2 | 3 | 2.6.3 |

**Part B (1\*10=10 Marks) [Either OR]**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Q.No** | **Question** | **Marks** | **CO** | **PO** | **BL** | **PI Code** |
| 5 | How do different storage classes differ in their performance? Illustrate each with an example. | 10 | 1 | 3 | 3 | 2.6.3 |
|  | **(OR)** |  |  |  |  |  |
| 6 | The Great Himalaya Trail is a route across the Himalayas from east to west. There is a single long distance trekking trail from the east end to the west end of Nepal that includes a total of approximately 3,700 kilometers. A mountaineer plans to trek this route 6 kms/day. Mountaineers want to know the travel in year, month and day format. Draw the Flowchart and write a C program to help him to find the travel days in yy/mm/dd format. | 10 | 1 | 2 | 3 | 2.6.3 |

**Quality Alignment Matrix (QAM)**

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| --- | --- | --- | --- | --- | --- |
| **Qn. No.** | **L1** | **L2** | **L3** | **L4** |  |
| **1** |  | **5** |  |  |  |
| **2** |  | **5** |  |  |  |
| **3** |  | **5** |  |  | **L1+L2 = 15 Marks, 15/40 = 37.5%** |
| **4** |  |  | **5** |  | **L3+L4 = 25 Marks, 25/40 = 62.5%** |
| **5** |  |  | **10** |  |  |
| **6** |  |  | **10** |  |  |
| **Total** | **0** | **15** | **25** | **0** |  |

**Course Outcome(CO) and Bloom’s level (BL) Coverage in Questions**

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