Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **14CS2056** | **Duration :** | **3hrs** |
| **Sub. Name :** | **DESIGN PATTERNS** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | | **Marks** |
| 1. | a. | List down the parameters used to represent the patterns in a consistent way. | CO2 | | 10 |
| b. | Can we use an abstract factory for supporting multiple window system in Lexi’s design? Justify. | CO3 | | 5 |
| c. | Break down the concerns that are influenced in selection of a design pattern. | CO1 | | 5 |
| **(OR)** | | | | | |  |  |  | (OR) |
| 2. | a. | Categorize and tabulate the design patterns based on its scope and purpose. | | CO2 | 10 |
| b. | Summarize the Lexi’s Formatting, embellishment and their design problems. | | CO1 | 10 |
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| 3. | a. | Discuss the Motivation, Structure, Collaborations and Implementation of the following Patterns:  i) Abstract Factory ii) Prototype. | | CO1 | 10 |
| b. | Based on class Cake mentioned above, define two subclasses named as OrderCake and ReadymadeCake. Override calcPrice() in these two classes.    b) By using the above information write an application program that will declare an array of 4 Cake class reference – dynamic method dispatch (two of OrderCake and two of ReadyMadeCake). | | CO2 | 10 |
| **(OR)** | | | | | |  |  |  | (OR) |
| 4. | a. | Why the Singleton uses a special method to instantiate objects? Discuss with the sameple code. | CO3 | | 10 |
| b. | Design the object of Terrorists and Counter Terrorists in the game of [Counter Strike](https://en.wikipedia.org/wiki/Counter-Strike). So, 2 classes are need to be created, one for **T**errorist(**T**) and other for **C**ounter **T**errorist(**CT**). Whenever a player asks for a weapon then assign him the asked weapon. In the mission, terrorist’s task is to plant a bomb while the counter terrorists have to diffuse the bomb. Also name the pattern used to achieve the above scenario. | CO2 | | 10 |
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| 5. | a. | Make an compatible interface between student and musician using appropriate pattern. | CO2 | | 10 |
| b. | How to reuse the objects by storing in a array list. Demonstrate with suitable code. | CO2 | | 10 |
| **(OR)** | | | | | |
| 6. | a. | Examine any one of the structural pattern with implementation. Justify its contribution in the structure of the classes of developed software. | CO1 | | 10 |
| b. | A house comprises of different rooms and things. Each room is again a composite object. Draw a structure to interpret the given scenario and explain the same. | CO2 | | 10 |
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| 7. | a. | State the uses and related patterns of Chain of responsibility and Command design patterns. | CO1 | | 10 |
| b. | Describe the implementation issues of Mediator pattern and demonstrate it using the sample code. | CO1 | | 10 |
| **(OR)** | | | | | |
| 8. | a. | Outline the structure and participants of Interpreter pattern with snippet of code to depict that. | CO1 | | 10 |
| b. | Construct an iterative process to show the items that are added in to the cart one by one. | CO2 | | 10 |
|  | | **Compulsory**: |  | |  |
| 9. | a. | List down the expectations from Design pattern. | CO1 | | 10 |
| b. | Describe the template pattern’s structure with its appropriate code. | CO2 | | 10 |