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



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

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| **Code :** | **17CS2033** | **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. | Describe the Spell Checking and Hyphenation design problem of Lexi Editor in detail. | CO5 | 10 |
| b. | Give the step-by-step approach to apply a design pattern effectively on software development. | CO5 | 5 |
| c. | List down the elements that influence the pattern. | CO1 | 5 |
| **(OR)** | | | | |  |  |  | (OR) |
| 2. | a. | Define MVC Model. How it infers the concept of design pattern? Give a pictorial representation of MVC model. | CO1 | 10 |
| b. | Compare and contrast Object composition with Inheritance. | CO1 | 5 |
| c. | Draw the object structure of reflecting compositor-directed line breaking method of document structure. | CO3 | 5 |
|  |  |  |  |  |
| 3. | a. | Discuss the pattern name, Applicability, Consequences and Related Patterns of the following Patterns.  i) Bridge ii) Proxy. | CO3 | 10 |
| b. | Observe the given image and implement the same using necessary pattern.  C:\Users\Home PC\AppData\Local\Microsoft\Windows\INetCache\Content.MSO\E1F955C7.tmp | CO6 | 10 |
| **(OR)** | | | | |  |  |  | (OR) |
| 4. | a. | The Singleton uses a special method to instantiate objects. Demonstrate it with a suitable real-time example. | CO2 | 10 |
| b. | Provide a suitable implementation in order to achieve the customized objects as per the given table.   |  |  |  |  | | --- | --- | --- | --- | | T\_Shirt (Size / Color) | Small | Medium | Large | | Blue | X | X | X | | Green | X | X | X | | CO4 | 10 |
|  |  |  |  |  |
| 5. | a. | Compute a compatible interface for the given classes.   * Student class can perform the following operation, get\_attendance(), write\_exam(), and learn\_concepts(). * Staff\_class can perform the following operations,   take\_attendance(), valuate\_exam and teach\_concepts() | CO5 | 10 |
| b. | When can be a Flyweight pattern effectively be applicable? Explain with suitable real time example. | CO4 | 10 |
| **(OR)** | | | | |
| 6. | a. | Discuss the implementation issues of Decorator pattern. | CO4 | 10 |
| b. | A shop keeper maintains different products in his/her store and the service is provided for the products using a single object. Suggest a suitable pattern to implement the above scenario and also demonstrate the same. | CO6 | 10 |
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| 7. | a. | State the uses and related patterns of Chain of responsibility and Command design patterns. | CO1 | 10 |
| b. | Simulate the concept of sending and receiving messages through a group communication using a suitable pattern. | CO5 | 10 |
| **(OR)** | | | | |
| 8. | a. | Write about the structure and participants of Interpreter pattern. | CO3 | 10 |
| b. | Demonstrate the CGPA update and Credit\_completion of a student by involving the observer pattern. | CO2 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | List down the expectations from Design pattern. | CO3 | 10 |
| b. | Describe the State pattern’s structure with its appropriate code. | CO1 | 10 |