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# P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Third Semester, Master of Computer Applications (MCA)

Semester End Examination; Feb. - 2021

Object Oriented Modeling and Design Patterns

Time: 3 hrs

Max. Marks: 100

Note: Answer **FIVE** full questions, selecting **ONE** full question from each unit.

## UNIT - I

- 1 a. Define object-orientation. Explain the steps of object-orientation methodology. 10
- b. Define a model. Describe three kinds of models. 10
- 2 a. Explain with example, what are the different OCL constructs that can be traversed in class model? 10
- b. Explain the following terms:
  - i) Package
  - ii) Derived Data
  - iii) Reification
  - iv) Metadata

## UNIT - II

- 3 a. Explain different state diagram behavior. 10
- b. Explain different types of concurrency supported by state model. 10
- 4 a. With a neat diagram, explain the state diagram for a telephone line. 10
- b. What is an event? Explain the different kinds of events with example. 10

## UNIT - III

- 5 a. What is a use case diagram? Give an example. Explain the guidelines for use case models. 10
- b. Explain the software development stages. 10
- 6 a. Mention the steps to construct the domain class model. Explain the criteria to keep right associations. 10
- b. What are the questions to be asked to generate a good problem statement? 10

## UNIT - IV

- 7 a. Briefly explain optimization task. 10
- b. Mention and explain steps to improve the organization of a class design. 10
- 8 a. What are the different architectural styles? Explain any two in detail. 10
- b. Briefly explain steps in designing algorithm, while designing class. 10

## UNIT - V

- 9 a. What is a pattern? Explain the categories of pattern in detail. 10
- b. Explain Forwarder-Receiver design pattern in detail. 10
- 10 a. Explain Client-Dispatcher-Server pattern in detail. 10
- b. What is an Idiom? Explain solution and implementation taking counted pointer Idiom as an example. 10