

Name:

Enrollment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Sem Examination, December 2021

Course: Object Oriented Analysis and Design

Programme: B.Tech. CSE All Branches

Time: 03 hrs.

Semester: V

Course Code: CSEG3002

Max. Marks: 100

SECTION A

Instructions:

- a) For Diagrams, use only UML notations.
- b) Assume suitable scenarios wherever applicable.

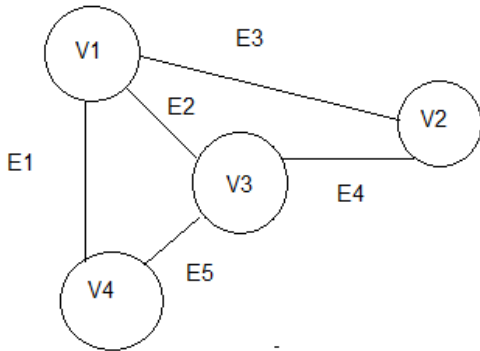
| Q. No. | | Marks | CO |
|--------|--|-------|-----|
| Q 1 | Why is modelling required? How UML helps in modelling? | 2*2 | CO1 |
| Q 2 | Define the following terms: i. Do activity ii. Association Class iii. Extend relationship iv. Collaborators | 4*1 | CO1 |
| Q 3 | Discuss the types of requirements in requirement engineering. | 4 | CO1 |
| Q 4 | Categorize the following relationship into generalization, aggregation, composition or association with proper justification. a) Mobile is Windows Mobile or Android. b) Bluetooth connects laptops and Tab. c) Processor and RAM are the parts of a computer. d) A browser window has multiple tab windows. | 4*1 | CO1 |
| Q5 | How are nodes different from components? List out two examples of components and nodes each. | 2*2 | CO5 |

SECTION B

| | | | |
|-----------|--|----|-----|
| Q 6 | Design <i>Deployment diagram</i> for "College Library Management System". | 10 | CO5 |
| Q 7 | Assume a suitable scenario and design a <i>Use Case Diagram</i> for an "Online job portal". | 10 | CO2 |
| Q 8 | Design <i>Sequence diagram</i> for the given scenario. "Crime Investigation Agency has launched an app on mobile using which anyone can report crime instantly by uploading footage or other pieces of evidence. Police then checks for the evidence and proceeds accordingly. Verifier verifies the evidence, and if required, agency files FIR and notifies the victim through mail and SMS. Following that, the agency handles the matter on its own, without exposing the victim's identity. Agency submits evidence in front of the court and gives the final judgement based on pieces of evidence." | 10 | CO3 |
| Q 9 | Design an <i>Activity diagram</i> for giving an online exam on the "Codetantra Platform". | 10 | CO3 |
| OR | | | |
| | Design a <i>Swimlane diagram</i> for giving an online exam on the "Codetantra Platform". | 10 | CO3 |

Section C

- Q 10 a) Assume that the "UttarakhandNow News" agency is developing a website for showing news. Various employees like editors, journalists, reporters etc., work together to collect news from different parts of the country of different categories like sports, politics, entertainment etc. Assume a suitable scenario and design a **Class Diagram** using UML notations.
- b) Design **Object Diagram** for the given undirected graph. Each vertex and edge has a name, as shown below.



2*10

CO2

- Q 11 a) Explain different types of events in the state diagram with suitable examples.
 b) Assume a suitable scenario and design a **State Diagram** for "train ticket" in Indian Railways.

2*10

CO4

OR

- a) Discuss the following concepts in state diagram with suitable examples:
 i) Aggregation concurrency
 ii) Nested state diagram
- b) Assume a suitable scenario and design a **State Diagram** for "Bank Account".

2*10

CO4