

GANPAT UNIVERSITY
B. TECH. SEM. - V COMPUTER ENGINEERING / INFORMATION TECHNOLOGY
REGULAR EXAMINATION NOV / DEC - 2012
2CE501/2IT501: OBJECT ORIENTED ANALYSIS AND DESIGN

Time: 3 Hours]

[Total Marks: 70

Instructions:

1. Figures to the right indicate full marks.
2. Each section should be written in a separate answer book.
3. Be precise and to the point in your answer.

SECTION-I

- Q.1 (a)** Prepare a state diagram for the control of a telephone answering machine. Calls are automatically answered as follows: An incoming call is detected on the first ring and the machine answers the call with a prerecorded announcement. When the announcement is complete, the caller's message is recorded. When the caller hangs up, the machine hangs up and shuts off. Place the following in the diagram: Call detected, answer call, play announcement, recode message, caller hangs up, announcement complete. (6)
- (b)** Draw a state diagram for Automatic Teller Machine with all possible states. (6)

OR

- Q.1 (a)** Make a state diagram for three phase induction motors will spin either clockwise or counterclockwise, depending on the connection to the power lines. In applications requiring motor operation in both directions, two separate contactors (power relay) might be used to make the connections, one for each direction. Also, in some applications of large motors, the motor starts through a transformer that reduces the impact on the power supply. The transformer is bypassed by a third contactor after the motor has been given enough time to come up to speed. These are three momentary control inputs: request for forward, reverse, or off. When the motor is off, forward or reverse requests cause the motor to start up and run in the requested direction. A reverse request is ignored if the motor is starting or running in the forward direction, and vice versa. An off request at any time shuts the motor off. (6)
- (b)** Make a state diagram for Elevator. Initially Elevator is in idle mode. If user presses the up button then elevator goes to composite state prepare-up. This composite state has two state door closing and elevator up. If user presses the down button then elevator goes to composite state prepare-down. This composite state has two state door closing and elevator down. Both composite states now goes into another composite state moving state which is made up of moving, stopping, door opening and at floor. If action is check next destination and timer out then composite moving state goes into checking next destination state. Checking next destination state goes into idle or prepare-up or prepare-down state depending upon checking the action like time out or press up button or press down button. (6)

- Q.2 (a) Construct a Swimlane diagram for the given scenario. The Library Management System is designed & developed for a receipt and issuance of books in the library along with the student's details. The books received in the library are entered in Books Entry form and the new student is entered in the student entry form. When the student wants to get the desired book the same is issued on the availability basis to the student. The issuance and due date for the returning of the book is also entered into the Book Issue form under third menu Book Issue. The student has to pay the fine if any on the basis of no. of days delayed deposit of the book in the library. (6)
- (b) Draw an Activity diagram for the given scenario. In broad band connection modem is central part of the system. Modem mainly contains 5 bulbs at the top of the modem and also contains holes for insert the plug at back site of the modem. When we powered on the modem after pressing the button at the back site of the modem, the Ethernet bulb is blinking based on the connection between NIC and the modem through a cable. One message also showing that your local area network is connected. After that ADSL or DSL bulb is blinking as per the modem type. If you don't have pppoe setting than the directly internet bulb is blinking and a connection has been establish. Otherwise you have to setup broadband wizard and configure that wizard. And then enter the username and password. Connection has been established if username and password both are correct. (5)

OR

- Q.2 (a) Draw a Swimlane diagram for Purchase order process. The shipping department receives all shipments on outstanding purchase orders. When the clerk in the shipping department receives a shipment, he or she finds the outstanding purchase order for those items. The clerk then sends multiple copies of the shipment packing slip. One copy goes to purchasing, and the department updates its records to indicate that the purchase order has been fulfilled. Another copy goes to accounting so that a payment can be made. A third copy goes to the requesting in-house customer so that he or she can receive the shipment. Once payment is made, the accounting department sends a notification to purchasing. Once the customer receives and accepts the goods, he or she sends notification to purchasing. When purchasing receives these other verifications, it closes the purchase order as fulfilled and paid. (6)
- (b) Draw an Activity diagram for Open Access Insurance System. The purpose of the Open Access Insurance System is to provide automotive insurance to car owners. Initially, prospective customers fill out an insurance application, which provides information about the customer and his or her vehicles. This information is sent to an agent, who sends it to various insurance companies to get quotes for insurance. When the responses return, the agent then determines the best policy for the type and level of coverage desired and gives the customer a copy of the insurance policy proposal and quote. (5)
- Q.3 (a) Discuss all the Elements of Use Case, Sequence & Activity Diagram with their proper notations. (4)
- (b) Compare Following Terms with Suitable example: (4)
1. Include & Extend
 2. State & Activity
- (c) Define the Following terms with proper example : (4)
1. Enumeration
 2. qualified association
 3. Lifeline
 4. Guard Condition