

GANPAT UNIVERSITY
B. Tech. Semester. V – Computer Engineering / Information Technology
Regular Examination November-December 2013
2CE501/2IT501: Object Oriented Analysis and Design

Time: 3 Hours

Total Marks: 70

Instructions:

1. Figures/Diagrams 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)** Draw a Sequence Diagram for calling & receiving process using Telephone which includes caller, callee & Mobile Phone. (6)
- (b)** Draw a Collaboration diagram for the given scenario. Customer goes to the restaurant and read the menu card provided by the waiter & then places the order as per choice. Waiter sends the order to the kitchen for cook. Cook prepares food by order and after that food serve to the customer by waiter. Customer takes the food and asks to waiter for the bill. After that bill has been calculated as per order of customer by manager & return back to customer through waiter. Customer pays the bill after check the amount and waiter send this bill to manager. (6)

OR

- Q.1 (a)** Draw a Sequence Diagram for issue a book and return it to the librarian depends on due date & fine if it is applicable. (6)
- (b)** Draw a Collaboration Diagram for "Cancel an Order" Use case of Flipcart Website. (6)
- Q.2 (a)** Draw a Swimlane Diagram for the dispensing activity of vending machine base on given scenario. Soft drink vending machine is in waiting mode for selection of product by users. Once user check the selection of product, the vending machine will display the message "product not available" or display product price. If product price is displayed then vending machine will be waiting for coin and then calculate the amount deposited. Then vending machine compare the amount of deposited with price of the product. If deposited amount is greater than equal to price then dispense the drink, together with change otherwise display the message "deposited amount is less than price" or dispense the coins. (6)
- (b)** Draw an Activity Diagram for Movie Ticket Selling System (MTSS) is mainly used for searching movie and purchasing movie tickets. Each movie is described with a movie ID, movie title, descriptions, date, time, duration and venue. MTSS should consist of touch screen as interface between customer and system, credit card reader and ticket printer. Each customer use screen for searching movie in order to read movie details or preview the trailer of the movie. After customer selects the movie, the screen will display the available seats. The customer selects the seat and the system will prompt the payment amount. The payment transaction should be settled by credit card. The payment will be confirmed if the card does not exceed its credit limit. If the payment cannot be confirmed, error message will be displayed on the screen and purchasing will be terminated. Once the payment has been confirmed, the ticket will be issued to the customer. (5)

OR

- Q.2 (a) Draw a Swimlane Diagram to withdraw Money from ATM. (6)
- (b) Draw an Activity Diagram for the given scenario. A customer visits the online shopping portal. A customer may buy item or just visit the page and logout. The customer can select a segment, then a category, and brand to get the different products in the desired brand. The customer can select the product for purchasing. The process can be repeated for more items. Once the customer finishes selecting the products, the cart can be viewed. For final payment, the customer have to login the portal, if the customer is visiting for the 1st time, they must register with the site. After login, Final cart is submitted for payment and card details and address (where shipment has to be made) are be confirmed by the customer. Customer is confirmed with a shipment ID and delivery send to the customer within at least 15 days. (5)
- Q.3 (a) Draw a State Diagram for given scenario. 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 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)
- (b) Draw the State Diagram for following Scenario. (6)

Hand Game : In this, there are 9 buttons. Each button has its own event specify by the manufacture. All name of buttons and its event shown below.

Name	Event
On	On the hand game
Off	Off the hand game
Pause	Pause game
Start	Start the game
Up	Navigation up
Down	Navigation down
Left	Navigation left
Right	Navigation right
Sound On/Off	Sound on/off

How it's Work : First of all the hand state is off, by pressing on button we can start the hand game. Now it display the list of games, using navigation key user can go to particular game then press the start button. Now the game is start, you can play the game.

SECTION-II

- Q.4 (a) Draw a Use case Diagram for given scenario. Show all the possible relationships. (6)

An online railway reservation consists of the following activities. A Passenger can reserve a ticket, cancel a ticket and enquiry. Each train has limited number of reserved seats. Once a passenger cancels a ticket, required amount is deducted and the waiting list passenger is allotted the seat. Passenger may also book a ticket in ticket scheme by paying additional amount. Passenger who booked the ticket under ticket scheme can't get any refund if the ticket is cancelled. The chart is prepared two hours before the departure of the train.

- (b) Draw a Use case Diagram for given scenario. Show all the possible relationships. (6)

The system to be developed & its enable users to create bank accounts. Bank accounts maintain their own balance. Customers should be able to deposit and withdraw money to/from their accounts by visiting a bank ATM based on the different branches. Customers should also be able to transfer funds from one bank account to another (in other words, the money should be withdrawn from the source account, and deposited into the destination account). The Bank manager should also calculate the interest accumulated each month for each account, and deposit that amount into their accounts. The bank manager should also calculate the monthly charges for each month (for each account), and withdraw that amount from the account.

OR

- Q.4 (a) Draw a Use case Diagram for given scenario. Show all the possible relationships. (6)

Consider a book store in a shopping mall. The customer selects the books from racks to purchase. The customer brings selected books to cashier. The cashier scans each item with checkout system to prepare an order. The cashier requests to customer for payment. The customer gives credit card to cashier. The verifier and checkout system scans the card. The verifier accepts the card and payment is accepted. Customer signs the credit card slip. The purchased books are handed over to customer.

- (b) Draw a Use case Diagram for given scenario. Show all the possible relationships. (6)

IPLive is a simple online website which consists of detailed information of every IPL match. It is specially made for cricket lovers. In this online website, user has to register for free access. Guest user can see the schedule only. Authorized user can enjoy live match or can buy tickets by paying charges with specific date & time to see the Live cricket match on ground. This website can also provide managing, maintaining team profiles and exchanging the information regarding the conducted matches. Register user can also see the highlights of match. Register user only can give the views for man of match after accessing the live match on website.

Q.5 (a) Draw a Class Diagram for given scenario. Show all the possible relationships. (6)

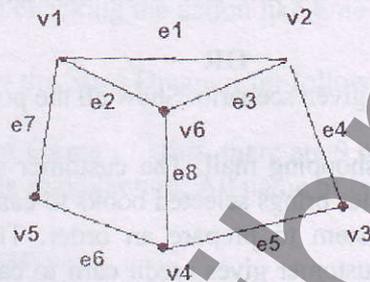
The Telephone agent uses an order registry and customer catalog to obtain access to an order & a customer respectively. The order registry uses an order number as a qualifier to select particular order instance. A customer catalog uses customer name and phone number as a qualifier to select particular customer. The attributes of an order are the order numbers and time when it is placed. The order consists of many items. An item has item number, a quantity, unit price. It also has reference to catalog item which represents listing. When an order is cancelled or committed, it cancels or commits each of its items first. When an order's total price method is invoked, the order calls the total price method of each of items and returns the sum.

(b) Categorize the following relationship into generalization, aggregation, composition and association with proper justification. (5)

- (1) Person can travel by Road.
- (2) Smith works as employee in IBM Company.
- (3) A Word File contains Paragraphs.
- (4) A Person plays for a team in a certain year.
- (5) Person has a house.

OR

Q.5 (a) Draw a Class & Object Diagram for following an undirected graph : (6)



(b) Draw a Class Diagram for given scenario. Show all the possible relationships. (5)

A drive has multiple discs. A hard drive contains many discs and a floppy drive contains one disc. A disc is divided into tracks which are in turn subdivided into sectors. A file system may use multiple discs and a disc may be partitioned across file systems. Similarly a disc may contain many files and a file may be partitioned across many discs. A file system consists of many files. Each file has an owner, permissions for reading and writing, date last modified, size, and checksum. Operations that apply to files include create, copy, delete, rename, compress, uncompress, and compare. Files may be data files or directory files. A directory hierarchically organizes groups of presumably related files. Directories may be recursively nested to an arbitrary depth. Each file within a directory can be uniquely identified by its file name. A file may correspond to many directory-file name pairs. A data file may be an ASCII file or binary file.

- Q.6 (a) What is the importance of UML? Explain UML building Blocks. (5)
- (b) Explain Deployment Diagram with proper example. (5)
- (c) Discuss Reverse Engineering using UML. (2)

END OF PAPER