Roll No: ----------

UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: B.Tech CS GG,OGI,OSOS,CCVT,BAO,BFSI,CSF,ITFM,E-Com,TI,MFT,HI,MI **Semester – V**

Subject (Course): Object oriented analysis & design **Max. Marks : 100**

Course Code : CSEG 304 **Duration : 3 Hrs**

No. of page/s:2

Attempt all questions. The marks for each question are written alongside with the question

Section A

Ques1: What do you understand by modelling? Explain concept of "views" in UML? **[5]**

Ques2: "RUP is not considered particularly agile". Elaborate and justify the statement? **[5]**

Ques3: What are the different types of events in State Diagram? Explain. **[5]**

Ques4: Explain Component model and Deployment model with an example? **[5]**

Section B

Ques5: Visitor requests for scheme to check the availability of the desired tour package. This information is stored in Tour Information System. System will check whether the customer is existing or new. New user will enter his personal and tour details for reservation. In turn he/she will be provided with system generated unique ID and password. This login information could be used for further transactions. When customer is satisfied with tour package he/she would request for reservation of tour. Personal details of new customer is stored in customer DB while the details regarding the tour selected by particular customer is stored in tour info DB and the details regarding it would be restructured in Tour Information System. Existing customer can update his/her personal details in customer Info.DB and cancel reservation for tour from tour info DB and changes regarding it are also reflected in Tour Information System. After confirming the tour package the customer will make payment either online or through staff by personally going at the office. Customer can make payment by cash, credit card or by cheque. System checks for the validity of staff. Once the payment is done by customer, valid staff will make Ticket Reservation System. Reserved customer will be able to view details about reservation by providing login **[10]**

information from customer info DB and tour info DB. Administrator can add, delete or modify tour schemes from Tour Information System. Draw Use case diagram for above scenario.

Ques6: What are the building blocks of UML? State various steps to generate a CRC card model? Explain with example? **[10]**

Ques7: Design and draw a Sequence diagram for the "Online Test"? Faculty check subjects from database and publish test. Test notification should be sent to student. Student validated on portal, appears for the test. After evaluation by faculty, result should be visible to student and updated in database. **[10]**

Ques 8: Why do we create an activity diagram? Design and draw swim-lane model for online shopping process? **[10]**

Section C

Ques 9 **[20]**

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, un-compress 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 such as through UNIX links. A data file may be an ASCII file or binary file. Draw Class diagram for the above stated problem statement and mention appropriate steps to identify classes along with their relationships?

Ques 10: **[10,10]**

a) Draw a State diagram of fully automatic washing machine? Include appropriate activities for respective state?

b) Develop and design state diagram for the following case: A simple digital watch has a display and two buttons to set it, the button A and the button B. The watch has two modes of operation, display time and set time. In the display time mode, the watch displays hours and minutes, separated by a flashing colon. The set time mode has two sub-modes, set hours and set minutes. The button A selects modes. Each time it is pressed, the mode advances in the sequence: display, set hours, set minutes, display, etc. Within the sub-mode, the button B advances the hours or minutes once each time it is pressed. Button B must be released before they can generate another

event.

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SECTION A

Ques1: What are the different qualities of objects that can be modeled? List different type of UML diagram with example? **[5]**

Ques2: What do you understand by activities in state diagram? **[5]**

Ques3: Distinguish between traditional model and OOAD models? **[5]**

Ques4: Explain an component model and deployment model with example? **[5]**

SECTION B

Ques5: Design and draw a level 2 Use-Case for "Waste Management System". The main purpose of WMITS is to help automate the entire process that the Department of Environmental Quality (DEQ) Waste Management Division (WMD) staff members perform throughout an inspection. The goals of WMITS are: **[10]**

1) To minimize the time span of any inspection
2) To minimize the amount of paper work required
3) To provide a searchable database of all past inspections
4) To provide an automated channel for the public to request information (under

Freedom of Information Act)

Ques6: Write a note to summarize the evolution of CRC card model? Design and draw a CRC card Model for "Order management in Restaurant"? **[10]**

Ques7: Design and draw a sequence diagram for the "ATM Transactions"? Include necessary conditions wherever required? **[10]**

Ques8: Draw activity diagram for "Online railway reservation"? 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. **[10]**

SECTION C

Ques9 **[20]**

A school has a principal, many students, and many teachers. Each of these persons has a name, birthdate, and may borrow and return books. Teachers and the principal are both paid a salary; the principal evaluates the teachers. A school board supervises multiple schools and can hire and fire the principal for each school. A school has many playgrounds and rooms. A playground has many swings. Each room has many chairs and doors. Rooms include restrooms, classrooms, and the cafeteria. Each classroom has many computers and desks. Each desk has many rulers. Draw Class diagram for the above stated problem statement and mention appropriate steps to identify classes along with their relationships?

Ques10: **[20]**

a) Devise and design a RUP model for the social media website?

b) Develop and design state diagram for the following microwave system. ?