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MANIPAL INSTITUTE OF TECHNOLOGY MANIPAL

(A constituent unit of MAHE, Manipal)

II SEMESTER M. TECH (COMPUTER SCIENCE AND ENGINEERING) END SEMESTER EXAMINATIONS, APRIL 2018 SUBJECT: OBJECT ORIENTED SYSTEM AND DESIGN [CSE 5202] REVISED CREDIT SYSTEM (19/04/2018)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ✤ Answer ALL the questions.
- ✤ Missing data may be suitable assumed.
- 1A. In employee referral process, the HR head of the region where a vacancy exists informs employees of that region and other regional HR heads. The other regional HR heads inform employees by putting up a notice informing them about the vacancy. The employees send on their recommendations to the regional HR head of the region where a vacancy exists. The regional HR head then matches the skills of these candidates with the skills required for the vacant position and shortlist them. An interview schedule is drawn up and the short listed candidates are informed. Based on the interview processing, interview details are updated and all the selected candidates are given offer letter. The candidate informs the HR (head where the vacancy exists) either by accepting or declining the offer letter. When a candidate referred by an employee joins the organization, the employee who has referred the candidate is paid a bonus.

a) Identify various use cases and actors involved and draw the use case diagram

- b) Identify the various classes and attributes and bring out a class diagram.
- **1B.** Explain with a neat diagram UP life cycles with phases, iterations and disciplines
- 2A. A Library lends books and magazines to member, who is registered in the system. Also it handles the purchase of new titles for the Library. Popular titles are bought into multiple copies. Old books and magazines are removed when they are out of date or in poor condition. A member can reserve a book or magazine that is not currently available in the library, so that when it is returned or purchased by the library, that person is notified. The library can easily create, replace and delete information about the titles, members, loans and reservation in the system.

(a) Identify the various use cases

5M

	(b) Draw a sequence diagram for removing the book and reserve books		
	(c) Write the Pre-condition and Post-condition for issuing of book.		
2B.	Explain the different types of information systems		3M
2C.	Define Model? Explain different types of models with an example.	•	2M

- **3A.** Explain the eight golden principles for designing interactive user interfaces. **4M**
- 3B. The Automated Railway Reservation System is a software used by Railway reservation staff. It shall provide train schedules and information. The train information includes the source station, destination station, train number, and the train name. It shall provide availability of seats on given dates and given train names. It is used to provide information about category (classes) of tickets like A/C, I class, II class, II class sleeper coach. Customers/passenger use the software to fill the reservation form manually and give it to the concerned railway staff. After processing the customer/passenger information, the staff will verify availability of the tickets. If it is available, the customer/passenger has to pay the ticket amount by cash to the railway staff. After the amount is paid the staff issues the ticket to the passenger. Here we assume that no Waiting list, RAC, tathkal tickets are issued, Cancellation of tickets are also not available. Updating information and availability of tickets is taken care by the railway staff.
 a). Draw an activity diagram to check the availability of seats.
 b) Draw the collaboration diagram for issuing of ticket.

3C.	Define Joint application design technique and list its participants.	2 M
4A.	Explain the Adaptor pattern with its template	4M
4B.	Describe the Two Layer Internet architecture with a neat diagram.	4M
4C.	Differentiate between Alpha testing and Beta testing.	2M

- 5A. Draw a neat state chart diagram for the given case study with all the states and exit transitions. 3M In this system, the student can take an exam online that is answer the questions on an Interactive time - bound examination system where its output (can also be printed) or result can be viewed immediately as soon as the user is finished with answering the questions. The system has a unique way of assessment of answers, which can be programmed by the teacher or the test taker. The input requirements to the system include, test banks which can be created by teacher/test taker and can be loaded by creating a specific test - session for the student. The creation of the test - session provides a unique username/password which is valid for particular user. When logged in with a valid userid/password student can open the test file and start the test. The track record of student can be maintained, regarding the tests taken by user & the marks obtained. The interactive test - creation environment can be provided, for the teacher/test taker through which he/she can load/create a new test, create student login, create/open new question banks with answers, create teacher accounts (for subject specific tests) print the test answers with the keys/solutions to them. The system can be expanded to have a detailed report of the student & the test takers along with correct answers and answers they gave with the marks. Also each exam/test paper can be made to expire so that no same question paper is availed to the user.
- 5B. Explain the Analyst's approach to problem solving with a neat diagram CSE 5202

5C. Define Normalization. Explain first normal form (1NF) and Second Normal form. Convert the following given table to 1NF.

Full Names	Physical Address	Movies rented	Salutation
Janet Jones	First Street Plot No 4	Pirates of the Caribbean, Clash of the Titans	Ms.
Robert Phil	3 rd Street 34	Forgetting Sarah Marshal, Daddy's Little Girls	Mr.
Robert Phil	5 th Avenue	Clash of the Titans	Mr.