



# MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL  
(A constituent unit of MAHE, Manipal)

**I SEMESTER MTECH. (SOFTWARE ENGINEERING) END SEMESTER  
EXAMINATIONS, FEBRAURY 2022  
SUBJECT: SOFTWARE DESIGN [ICT 5154]-PARTB  
REVISED CREDIT SYSTEM  
(11/02/2022)**

**TIME: 75+10 minutes**

**MAX. MARKS: 20**

**Instructions to candidates**

- Answer **ALL** questions.
- Missing data, if any, may be suitably assumed.

Questions	M*	C*	A*	B*
<p>1A. Draw use-case diagram and write use-case specification for any two important use-cases drawn, for the following problem statement.</p> <p>The case study 'Online Mobile Recharge' gives us the information about all the mobile service providers. This application provides us the complete information regarding any mobile service provider in terms of their plans, options, benefits, etc. Suppose, any Airtel customer wants to have the information of all the schemes and services provided by the company, he/she can have the information and according to his convenience he can recharge the mobile from the same application. The major advantage of this proposed system is to have the recharging facility of any service provider under same roof. Service Provider is the one who is nothing but the mobile service provider like all the companies who are giving the mobile connections come under this module. Functionality of this module is to make the mobile recharging of their company based on the availability of balance in the admin account. Request comes from the user, and it is going to be verified at the admin for the availability of balance and then the request is forwarded to the service provider to make the mobile recharge. Administrator is the one who monitors all users and user transactions. Admin also monitors all the Service Providers, all the user accounts, and amounts paid by the user and amounts paid to Service providers. When the request given by the user, admin checks the available balance in the user account and then request is forwarded to the Service Provider from there user request gets processed. Admin have the complete information related to user and all the information related to the schemes and other information of different recharge coupons provided by the Service Providers. All the data is maintained at the Admin level. Admin is having the rights to restrict any user. Any person who wants to utilize the services of Online Mobile Recharge at any time from any location, they should get registered in this application. After getting registered user can recharge the mobile at any time and from any location. Visitor is the one who visits the Online Mobile Recharge application and have the complete information related to the Service Providers and can make the mobile recharge by entering the bank details or by giving the credit card details.</p>	5	3	3	3
1B. Explain the following sequence diagram in Figure Q1B.	3	3	3	3

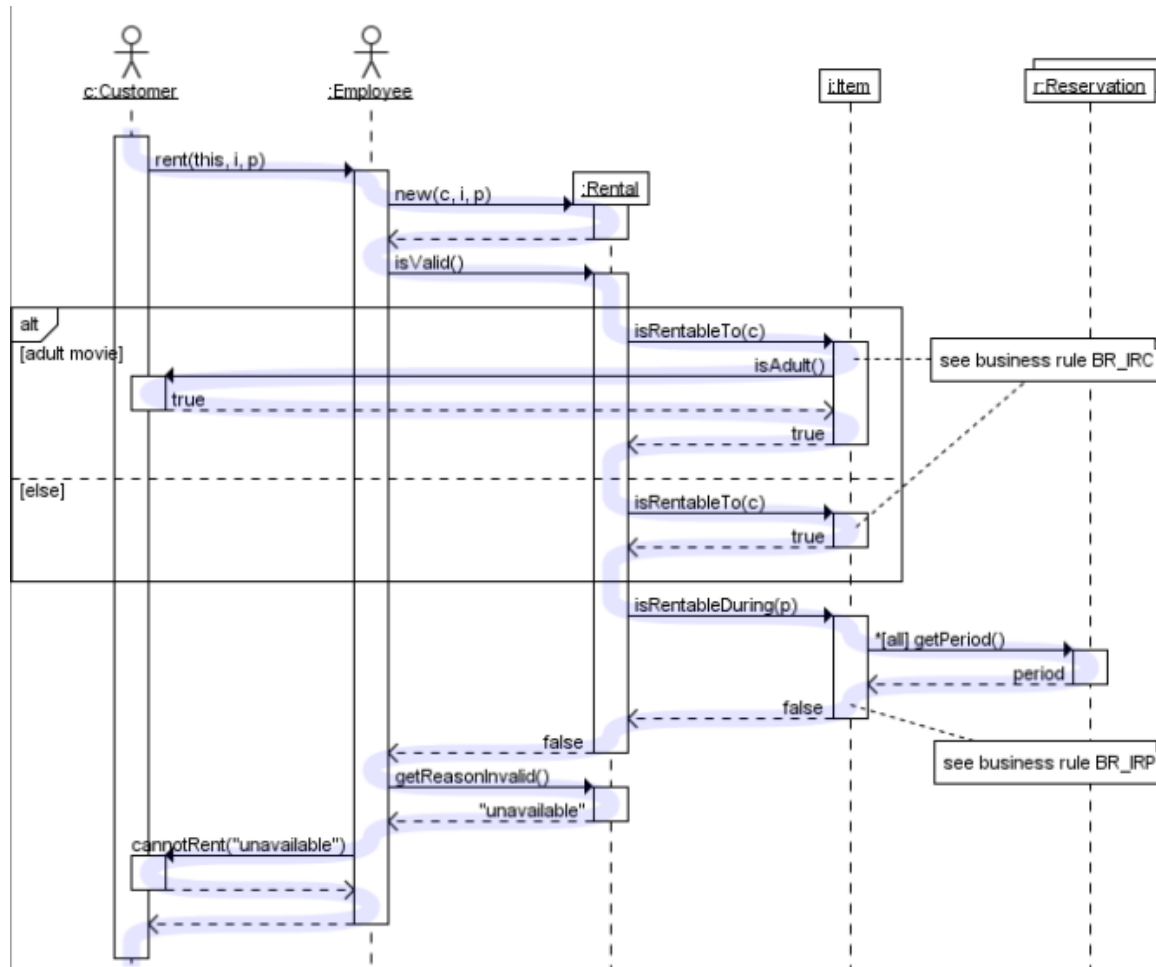


Figure Q1B

1C.What are component and deployment diagrams ? Explain with small example	2	1	1,2 ,5, 16, 17	2
2A. Draw class Diagram for the problem statement in Q1A.	5	3	3	3
2B. Explain various types of cohesion and coupling	3	2	1,2 ,5, 16, 17	2
2C. Explain the relationship between separation of concern, modularity, functional independence.	2	2	1,2 ,5, 16, 17	3

M\*--Marks, C\*--CLO, A\*--AHEP LO, B\* Blooms Taxonomy Level