



**MANIPAL INSTITUTE OF TECHNOLOGY**

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*(A constituent unit of MAHE, Manipal)*

**VII SEMESTER B.TECH.(DEPARTMENT OF COMPUTER SCIENCE  
AND ENGINEERING) MAKEUP SEMESTER EXAMINATIONS,  
FEB/MAR, 2022**

**SUBJECT: ESSENTIALS OF INDUSTRIAL COMPUTING (CSE - 4301)  
REVISED CREDIT SYSTEM  
(01/03/2021)**

Time: 02:20 PM – 03:35 PM

MAX.MARKS: 20

**INSTRUCTIONS TO CANDIDATES:-**

- Answer **ALL** the questions.
- Missing data may be suitable assumed.

1A.	Illustrate the merge sort algorithm to sort the following elements in ascending order. Elements are -  5 4 10 2 6 3  Clearly show all the steps.	5M
1B.	Software system is to be designed for supporting a computerized ATM banking network. All the accounts maintained in the bank and also the transactions effected, including ATM transactions, are to be processed by the computers in the bank. An ATM accepts a relevant cash card interacts with the user, communicates with the central system to carry out the transaction, dispenses cash, and print receipts. The system to be designed and implemented must include appropriate record keeping and security provisions. The system must handle concurrent accesses to the same account.  Construct a generalization - specialization hierarchy used to depict the relationship between the generalized class and the corresponding specialized class.	3M
1C.	Explain are the different methods of integration testing.	2M
2A.	A visit to Tirumala-Tirupati would be an enchanting experience by the new e-services started by TTD management. There are ample services launched through online by TTD for the smooth movement of pilgrims. TTD ensures comfortable accommodation at a reasonable cost through e-accommodation. People have to reserve for accommodation before one month. Maximum of 2 rooms are allotted for each reservation. They have to give the details like type and no. of rooms. Pilgrims can make advance booking for Dharshan like sarvadarshan which is for free or for special darshan which requires payment as well as for special sevas which are offered daily, weekly, periodically through e-darshan and e-seva. Pilgrim needs to just enter the personal information and type of seva he/she prefer to offer. Based on the availability, date and time will be given to attend. TTD also started e-sales, providing people to buy publications of	5M



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	<p>TTD, audio and video CD's, photos and other sacred items of TTD to buy by online.. People interested to offer voluntary services for welfare activities organized by TTD can also register online. TTD also provide online help, where people can pose any queries about contact information of various managing sectors of TTD.</p> <p>For the above scenario, Design a detailed use case diagram.</p>	
2B.	<p>Determine the approach used to solve travelling sales person problem. Given four cities and a salesman, Apply traveling sales person problem to find the shortest distance travelled from city1. The distance between different cities is given in the following matrix.</p> <p>1 2 3 4</p> <p>1 0 10 11 17</p> <p>2 10 0 28 13</p> <p>3 11 28 0 8</p> <p>4 17 13 8 0</p>	3M
2C.	<p>Show the schematic architecture of a web browser and communication between web browser and web server.</p>	2M