VIT
Vellore Institute of Technology

Continuous Assessment Test – II
Programme Name & Branch: B.Tech (ALL Branches)
Course Name & Code: Java Programming & CSE1007

Class Number: 5879, 6087, 6090, 5776, 5779, 5772
Slot: D2   Exam Duration: 1½ Hours

Maximum Marks: 50

Part - A (5*10 = 50)
Each Question Carries Equal Marks

1. Read the PAN Number and Name of an Employee. If the PAN Number does not contain exactly 10 characters and if the Name of the Employee is empty throw an IllegalArgumentException. If the PAN Number contains any character other than digits and alphabets, throw a NoSuchElementException. Considering the PAN number starts with 0th position, check for 5th to 8th position (including 5th position) of the PAN Number to be digit and also 4th position of the PAN Number should be the First Letter of the employee's Name. If all the cases are valid for PAN Number print the message 'valid' else 'invalid'.

EX : PAN Number : AXXXB1234V
   Name of the Employee : Bansal

Checking for Validity :   AXXXB1234V - Valid
                          AXXXCer34V - Invalid
Position of the Character

A	X	X	X	B	1	2	3	4	V
0	1	2	3	4	5	6	7	8	9

2. A XYZ company is interested in permitting the college students to have an industrial visit to their company. Define a class 'Industrial Visit' to store the below mentioned details of a trip to the company.
- Name of the college, Number of students attended,   Date of visit,   Accompanied Professor(s), Contact number of the Professors, Address of the college. Create 'n' objects of this class for all the Colleges Visited the Company. Write these objects to a file. Read these objects from the file and display only the engineering colleges who visited them for the recent last six months.

(Note: Include necessary variables as per the requirement if necessary)

3. Samsung mobiles are ready for New Year sale through online stores such as Amazon, Flipkart and E-bay. Customers are provided the option of purchasing the mobile through online. But the number of Mobile availability restricted to 1000 for certain period of sale from midnight 12.00AM to 2.00 AM on a New year. Find out the best seller using synchronized method or synchronized block, where the resource has to be enabled by all the online stores for the above specified period without any time delay.

4. Create two Hashmaps for Train schedule. Consider one Hashmap to store the Train number and the Name of the Train as key-value pair from Katpadi to Kotayyam on Sundays, and create another Hashmap to store the Train departure timing with the Train number. ie (12345, Trivandrum Express) and another Hashmap as (17.40, 12345)

Using the above scenario do the following
1. Add or remove the train details from the first Hashmap
2. Iterate over the maps and display the key-value pairs stored in both the Hash maps
3 Given a particular timing, display the name of the Train running during the specified time.

5. Create a Collection framework to store the name of the patient and their id key-value pair registered for a particular doctor for kidney cancer as the initial list. After treatment, list out the number of patients discharged and the number of patients enrolled as new patient for the specified doctor with their corresponding patient id. Print the number of patients added or removed as separate set to identify the total number of patients getting treatment for a period of two years.

Ex: Initial set = {(15XXX0001, AAA),(15XXX0002, BBB),(17XXX0003, CCC),(18XXX0045,DDD).......}- 5 patients

After treatment ={{(15XXX0001, AAA),(15XXX0002, BBB), (14XXX00034, AAA),(16XXX0002, FFF), (18XXX0045,DDD).......} - 6 patients

Enrolled Id: (14XXX00034, AAA),(16XXX0002, FFF) - 2 patients
Discharge Id: (17XXX0003, CCC) - 1 patient
All 6 patients details to be displayed.

************************************* ALL THE BEST *************************