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| **Midterm Exam 20221**  **STT**  Subject: IT3290E – DatabaseLab Group: 1  Date: Feb 8, 2023 Duration : 45 **min** | |
| Student ID:  Student Name: | **Note:** |

**For each question, paste your code and a screenshot of the output of each question**

Question 1: (Index)

1. Write SQL query to return a list of orderlines having “quantity” greater than 2
2. Write SQL sentence to create a hash index on “orderliness.quantity” and show the query plan for query (a) generated by DBMS
3. Write SQL sentence to create a btree index on orderliness.quantity and show the query plan for query (a) generated by DBMS
4. Is there any difference between the query plans generated in b and c ? Explain
5. Drop all the index created in (b) and (c). Write SQL query to return a list of orderlines having “quantity” greater than 3 and then redo b,c,d for the new query.
6. Is there any difference between d and e ? Explain

Question 2: (Query)

* 1. Write SQL all possible queries (join, nested queries, …. ) to return a list of different orders having the total number of products greater than 6
  2. Compare the query plans generated by DBMS for the above queries. Are they different? Explain
  3. Create relevant index(es) for the above queries and check if index is used. Explain

Question 3 (Trigger)

1. Add the attributes “in\_stock” in the relation Product. “in\_stock” is the number of product in stock.
2. Write trigger to ensure that the attribute “in\_stock” must be updated (increase/decrease) automatically according to the quantity of the product when new order(lines) are added or existing ones are modified

Question 4: (function)

Write a function to return all product having “in\_stock” under a given limit (provided as input argument)