MCQ + FIB +5 = 28.5
15   8.5

In-Semester Examination - II (Autumn '2023)
IT618 Enterprise Computing

A

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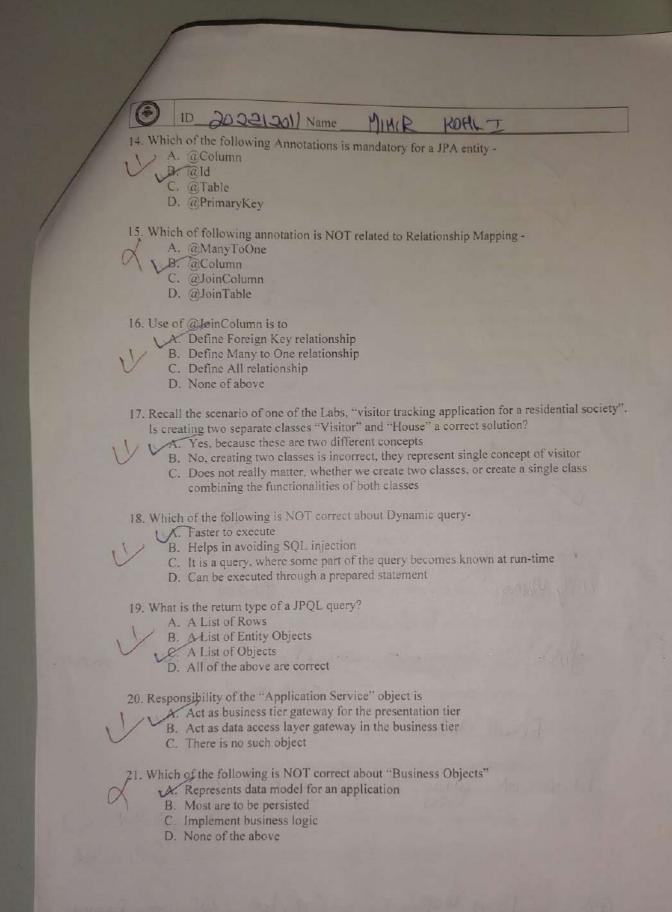Time: 75 minutes   Max Points: 60

> **IMPORTANT NOTE:**
> 1. There are 6 pages in the question paper, make sure that you have received them all!
> 2. Write your IDs on every sheet.
> 3. **Answers that are difficult to read shall simply be ignored.**

*Choose the **most correct** option in the following multiple-choice questions. You need to choose only one option.*
[25x1]

1. What is not true about **Canvas** with respect to **Canvas0** discussed in lectures
   A. **Canvas** is more reusable
   B. **Canvas** has more dependencies as it also depends on **Shape**
   C. **Canvas** has less dependencies as it has less dependencies
   D. None of the Above

2. What is not true in relation to **Canvas0** and **Canvas** discussed in lectures
   A. The class **Canvas** is Type Substitutable with **Canvas0**
   B. The class **Canvas** uses the Dependency Inversion Principle
   C. The class **Canvas** follows Open Close Principle
   D. None of the Above

3. Which of the following is not true about "Data Access Object"?
   A. It follows the MVC pattern
   B. It follows the three-layer principle
   C. It helps in code reusability
   D. None of the above

4. Data Access Object
   A. is a strategy
   B. is an interface in Java Persistence API
   C. is a JPA component
   D. is a Hibernate component

5. Which of the following is true about "Data Repository" in frameworks?
   A. Typically implements "Data Access Objects" strategy
   B. A framework-specific data storage model
   C. Contains meta-data of target database
   D. All of the above

6. Which of the following a programming language should support in order to implement
   "Dependency Inversion Principle"?
   A. Inheritance
   B. Type Substitution
   C. Abstract Classes
   D. No such requirement
   E. All of the above

7. Which of the following is NOT an advantage of a multi-tier application?
   A. Efficiency
   B. Code reusability
   C. Availability
   D. Scalability

8. Which tier component Java Hashmap is?
   A. Client Component
   B. Presentation Tier component
   C. Business layer component
   D. Can be used at any tier

9. What is correct about the "Dependency Inversion Principle"
   A. It lets us reduce the dependencies
   B. It is implemented through Polymorphism
   C. It moves dependencies to the "parent class"
   D. All above are correct statements

10. Which of the following is NOT correct about the JDBC driver?
    A. You require a JDBC Driver for running a program that requires communicating to a
       RDBMS.
    B. You need a JDBC Driver at Compile Time
    C. A JDBC driver is specific to a DBMS
    D. A JDBC program is not specific to a DBMS

11. The file "persistence.xml" is used for
    A. Defining JPA dependencies
    B. Defining JNDI resources
    C. Defining persistence unit
    D. Defining application flow

12. Which of the following components is NOT part of Java JDBC API?
    A. "java.sql.DriverManager"
    B. "java.sql.Driver"
    C. "org.postgresql.Driver"
    D. "javax.sql.DataSource"
    E. None of the above

13. Which of the following is NOT a method of entity manager -
    A. persist
    B. remove
    C. insert
    D. refresh

14. Which of the following Annotations is mandatory for a JPA entity -
    A. @Column
    B. @Id
    C. @Table
    D. @PrimaryKey

15. Which of following annotation is NOT related to Relationship Mapping -
    A. @ManyToOne
    B. @Column
    C. @JoinColumn
    D. @JoinTable

16. Use of @JoinColumn is to
    A. Define Foreign Key relationship
    B. Define Many to One relationship
    C. Define All relationship
    D. None of above

17. Recall the scenario of one of the Labs, "visitor tracking application for a residential society".
    Is creating two separate classes "Visitor" and "House" a correct solution?
    A. Yes, because these are two different concepts
    B. No, creating two classes is incorrect, they represent single concept of visitor
    C. Does not really matter, whether we create two classes, or create a single class
       combining the functionalities of both classes

18. Which of the following is NOT correct about Dynamic query-
    A. Faster to execute
    B. Helps in avoiding SQL injection
    C. It is a query, where some part of the query becomes known at run-time
    D. Can be executed through a prepared statement

19. What is the return type of a JPQL query?
    A. A List of Rows
    B. A List of Entity Objects
    C. A List of Objects
    D. All of the above are correct

20. Responsibility of the "Application Service" object is
    A. Act as business tier gateway for the presentation tier
    B. Act as data access layer gateway in the business tier
    C. There is no such object

21. Which of the following is NOT correct about "Business Objects"
    A. Represents data model for an application
    B. Most are to be persisted
    C. Implement business logic
    D. None of the above

22. Which of the following is NOT correct about the "prepared statement"?

A. Used to execute dynamic query
B. Mechanism to execute queries more efficiently
C. Mechanism to handle SQL Injections
D. None of above

23. What does command "Class.forName("org.postgresql.Driver");" do?

A. Registers JDBC driver
B. Constructs object of JDBC Driver
C. Constructs object of JDBC Driver and Registers it
D. Establishes JDBC Connection

24. Suppose you have a JPQL query: "SELECT S FROM STUDENT AS S ORDER BY S"; What order result would be arranged?

A. Student ID
B. Would throw run-time error
C. In Random order
D. Depends on the implementation of the Student entity class.

25. Which annotation would you use in student entity for defining relationship with a program of XIT database

A. @OneToMay
B. @ManyToOne
C. @OneToOne
D. @ManyToMany

Fill in the blanks in following questions   [3x3+3x2=15]

26. Name of the method of entity manager that is used for inserting a new row

Entity Manager and parameter(s) to this method is Arrow ()

27. Name of the method of entity manager that is used for finding a row by primary key

find () and parameter to this method is find ("Obj.class", "argument")

28. The method executeQuery () belongs to class Statement and

it returns Result Set type of object.

29. What does getBookDAO method of Book DAOFactory returns?

Return an array of object of Book entity.
list

30. To what object getConnection method in JDBC API belongs to Class.forName ()

31. Name of object in JDBC API that is used for getting a "Physical Connection" Connection

con = Driver Manager. get Connection (UN, user, password)

32. Recall the **Inventory** class of Lab01. Can you provide all field declarations of the Inventory class here?

[5+5]

```
class Inventory {
    //Methods
    Item getItem(int itemno) throws ItemNotFound
    void addItem(Item item) throws ItemAlreadyExists
    void addStock(int item_code, int qty) throws ItemNotFound
    void deleteItem(int item_code) throws ItemNotFound
    ArrayList<Item> getAllItems()
    double totalInventoryCost()
    ...

    //declare fields

    ArrayList <Item> Item;
    private double totalCost;



}
```

33. Give Code implementing the **getAllItems** method of Inventory class

```
ArrayList <Item> result = new ArrayList<>();
    for (int i=0; i< list.size(); i++) {
            result.add(list.get(i));
    3
    return result;
3
```

given that [list] is an arraylist passed to
getAllItems as an argument.

34. Consider following Business Object Customer. Do you see any bad design choices in this class? If yes, point that out. Ignore syntax errors if any. [5]

```
class Customer {
    Customer()
    int getCustNo()
    String getName()
    String getAddress()
    void setName(String name)
    void setAddress(String address)
    void read(DBConnection dbcon)
    void save(DBConnection dbcon)
}
```

void read() & void save() are database specific function which shouldn't be implemented inside customer class. Also there exist a solution of pooling connection. Above code integrate two different entity logic inside single code which is not good practice

35. Provide pseudo code of the "getAllItems()" method of JPA based implementation of InventoryDAO. Need not to worry about syntax errors as long as code is logically and semantically correct. [5]

get All Items () {

Array List < Items > list;

Database Conn URL;

list = conn.get();

return list;

}