

Q. If a student has scored less than 50, his status must be shown as FAIL Otherwise, his mark must be displayed

The developers wrote the following queries

Tom: SELECT STUDENTD CASE WHEN MARKS -- 50 THEN FAIL ELSE TO CHAR(Marks) END AS STATUS FROM ASSESSMENT

Dick: SELECT STUDENTID, CASE WHEN MARKS 50 THEN FAIL ELSE Marks END AS STATUS FROM ASSESSMENT

Hary: SELECT STUDENT DICASE WHEN MAAK 50 THEN SAL ELSE Marks END FROM ASSESSMENT

Which one of them will give the desired output?

**ANS : TOM**

---

Q. A table Employee has the following data:

| EmployeeNo | EmployeeName | Department | Salary |
|------------|--------------|------------|--------|
| 1111       | Paul         | Sales      | 1000   |
| 2111       | Smith        | Sales      | 200    |
| 3211       | Gary         | Marketing  | 1000   |
| 1222       | Manya        | Marketing  | 500    |
| 2222       | Raj          | HR         | 1000   |
| 3222       | Paul         | HR         | 200    |

The following queries were executed on the table successfully

UPDATE EMPLOYEE SET DEPARTMENT = 'HR' WHERE DEPARTMENT = Marketing

DELETE FROM EMPLOYEE WHERE DEPARTMENT = HR AND SALARY = 1000

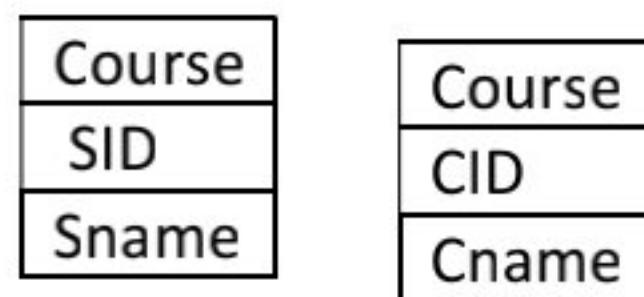
What will be the output of the following query?

SELECT COUNT FROM EMPLOYEE

**ANS : 4**

---

Q. Tables course and student have 1-N relationship respectively. Cid is the primary key of course table and Sid is the primary key of student table. To which table the foreign key should be added?



**ANS : ONLY STUDENT**

---

Q.. Consider the following code written for creating the table: CREATE TABLE ACCOUNT (ACCNO INT, ACCNAME VARCHAR(30) NOT NULL, BALANCE),

The table is NOT getting created, identify the reason.

**ANS : BALANCE must have a datatype**

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Q. Consider the following statements with respect to a candidate key:

- Candidate key identifies rows in a relation uniquely.
- There can be only one candidate key in a relation.
- A candidate key can be a combination of more than one attribute in a relation.

Identify the statement(s) which are TRUE.

**ANS : Only a and c**

Rajesh created a table EMP in order to record employee details.

The table creation script for the same is given below:

```
CREATE TABLE EMP(  
empid NUMBER(10) PRIMARY KEY,  
empname VARCHAR2(50),  
cabinnumber NUMBER(20) UNIQUE
```

Currently table has some data as given below:

| EmpID | EMPname | Cabinnumber |
|-------|---------|-------------|
| 1001  | Hari    | 789         |
| 1002  | Varun   | 145         |
| 1003  | Shyam   | 458         |

Select the right option for inserting a new row into the table.

**ANS : INSERT INTO EMP VALUES (1004, LaliNULL)**

---

Q. Consider the below table SalesPerson

| ID   | Amount |
|------|--------|
| 1002 | 2400   |
| 2005 | 1800   |
| 1001 | 460    |
| 1002 | 2400   |
| 1009 | 600    |
| 1009 | 600    |
| 1009 | 600    |

SELECT DISTINCT id, Amount FROM SalesPerson ORDER BY Amount ASC

Based on the output of the above query, identify the correct statement

**ANS : 1005 will be 3rd record.**

---

Q. Consider the tables vehtype and vehicle given below:

vehtype{vid} with vid being the primary key.

vehicle fid, vid, brand, model, price) with id being the primary key and vid foreign key to the vehtype table

Consider the below join query:

```
select brand from vehicle v join vehtype vt
```

```
on v.vid vt.vid
```

```
group by brand
```

```
having count(vtype)>1
```

Choose an equivalent subquery that would achieve the functionality performed by the above join query.

Note: The only difference between the options is in the WHERE clause

**ANS ; SELECT brand FROM vehicle WHERE vid in (SELECT vid FROM vehtype) GROUP BY brand HAVING COUNT(vid)>1**

---

Q. Table emp

| empno | ename | DePT NO | SAL  |
|-------|-------|---------|------|
| 1001  | Mary  | 10      | 1000 |
| 1002  | John  | 20      | 2000 |
| 1003  | Jack  | 30      | 4000 |
| 1005  | Jane  | 10      | 4000 |

empno primary key

deptno is foreign key

Table dept

| Dept no | dname          |
|---------|----------------|
| 10      | Finance        |
| 20      | Accounts       |
| 30      | Sales          |
| 40      | Infrastructure |

deptno is the primary key

**Which of the following queries will execute successfully?**

**ANS :INSERT INTO emp VALUES(1006, 'Fedrick 10, 2000)**

**INSERT INTO emp VALUES (1008, Frederick, NULL 3000)**

---

Consider the table toys given below:

| TOYID | TOYNAME     | Category ID | Price |
|-------|-------------|-------------|-------|
| 200   | Barbie      | 101         | 200   |
| 201   | Drummer     | 102         | 500   |
| 202   | Racing Car  | 103         | 600   |
| 203   | Kelly       | 101         | 500   |
| 204   | Ken Beat    | 102         | 400   |
| 205   | Teddy       | 101         | 600   |
| 206   | Monster Car | 103         | 500   |

What will be the output of the below query?

**SELECT FROM toys t1 WHERE price - (SELECT MAX(price) FROM toys t2 WHERE category d-t2.category**

**ANS:**

| TOYID | TOYNAME    | Category ID | Price |
|-------|------------|-------------|-------|
| 201   | Drummer    | 102         | 500   |
| 202   | Racing car | 103         | 600   |
| 205   | Teddy      | 101         | 600   |

---

**Q.**

| EmployeeNo | EmployeeName | Department | Salary |
|------------|--------------|------------|--------|
| 1111       | Paul         | Sales      | 1000   |
| 2111       | Smith        | Sales      | NULL   |
| 3211       | Gary         | Marketing  | 1000   |
| 1222       | Manya        | Marketing  | 1000   |
| 2222       | Raj          | HR         | 1000   |
| 3222       | Paul         | HR         | NULL   |

Three developers Tom, Dick and Harry are given the task of finding the average salary of the employees in the company. They have been told that a NULL in the salary column means that those employees should not be considered

They write the following queries

Tom SELECT SUM(Salary) COUNT)\* from EMPLOYEE WHERE Salary IS NOT NULL

Dick SELECT SUM (Salary)COUNT)(\*) from EMPLOYEE:

Harry SELECT AVG Salary from EMPLOYEE:

Which of them have got the query correct

**ANS: Tom and Harry have got it right**

Q. Consider the table broker given below:

| BrokerNo | Comission |
|----------|-----------|
| 101      | 30        |
| 102      | 20        |
| 103      | Null      |
| 102      | 20        |
| 101      | 40        |

Which of the following will be one of the rows in the output of the below SQL query?

SELECT Broker No. COUNT(NVL(Comission,0)) Commission

FROM Broker GROUP BY BrokerNo;

**ANS:**

| BrokerNo | Comission |
|----------|-----------|
| 103      | 1         |

Q. Consider the below table named Destination

| DestId | DestName |
|--------|----------|
| 101    | Delhi    |
| 102    | Pune     |
| 103    | Chennai  |
| 104    | Mumbai   |

| TravelId | TourName        | DestId |
|----------|-----------------|--------|
| 5001     | Delhi Delight   | 101    |
| 5002     | Capital Delight | 101    |
| 5003     | Mumbai Mazzaa   | 104    |
| 5004     | Chennai Express | 103    |
| 5005     | Southern Spice  | 103    |

Destid is the PRIMARY KEY,

Another table Travel holds the list of tour packages as given below:

Destid in the Travel table references the Destid of the Destination table using a FOREIGN KEY.

Given the above details which of the following queries will execute successfully.

Choose 2 CORRECT options.

**ANS : DELETE FROM Destination where destid = 102**

**UPDATE Destination SET destid = 105 where destid = 102**

Q. Consider the table Teacher given below:

| TeacherId | FirstName | Location | Salary | Availability |
|-----------|-----------|----------|--------|--------------|
| T300      | James     | Chennai  | 5000   | Y            |
| T301      | Klem      | Mysore   | 5700   | Y            |
| T302      | Nancy     | Delhi    | 5000   | Y            |
| T303      | Donald    | Pune     | 6500   | N            |
| T304      | Ervin     | Delhi    | 4750   | N            |

How many rows will get updated when the below query is executed?

UPDATE TEACHER SET SALARY = SALARY + 5000 WHERE TEACHERID IN  
(SELECT TEACHERID FROM TEACHER WHERE AVAILABILITY = 'N' OR SALARY > 5000); **ANS: 3 three**

Q. Consider the table products given below:

SQL> SELECT \* FROM products;

| MANUFACTURER | MODELNO | PRODTYPE |
|--------------|---------|----------|
| ABC          | 1000    | PC       |
| ABC          | 1001    | PC       |
| ABC          | 1002    | Printer  |
| ABC          | 1003    | Laptop   |
| ABC          | 1004    | Printer  |
| ABC          | 1005    | Printer  |
| ABC          | 1006    | Laptop   |
| DEF          | 2000    | PC       |
| DEF          | 2001    | Laptop   |
| GHI          | 3000    | Laptop   |
| FGH          | 4000    | PC       |
| FGH          | 4001    | Printer  |
| FGH          | 4002    | Laptop   |

Note: modelno is the PRIMARY KEY of products table.

What will be the output of the following query?

SELECT prodtype FROM products GROUP BY prodtype  
HAVING COUNT(modelno)=(SELECT MINICOUNT(mode no)) FROM products GROUP BY prodtype:

**ANS : PC <br> Printer**

TABLE: SUPPLIER

Q. Consider the tables SUPPLIER and ORDERS given below:

TABLE: ORDER

| ORDER_ID | SUPPLIER_ID | ORDER_DATE |
|----------|-------------|------------|
| 88891    | 10001       | 20-Jun-15  |
| 88891    | 10002       | 23-Feb-15  |

| SUPPLIER_ID | SUPPLIER_NAME |
|-------------|---------------|
| 10001       | MICROSOFT     |
| 10002       | HONEYWELL     |
| 10003       | NOKIA         |
| 10004       | SAMSUNG       |

Identify the query to fetch the details of all the suppliers along with order details. Include the suppliers who haven't ordered any items also.

**ANS: SELECT Supplierid, o.supplier\_id, o.order\_date FROM suppliers LEFT OUTER JOIN orders o on s.supplier\_id=o.supplier\_id:**

Q. Consider customer end subscription given below:

Table: customer

| customerId | customerName |
|------------|--------------|
| 101        | Jack         |
| 102        | Tom          |
| 103        | Harry        |
| 104        | peter        |

Table: subscription

What is the output of the below query?

SELECT customerNeme

FROM customer c JOIN subscription s ON  
s.customerId=c.customerId

WHERE s. customerId NOT IN (SELECT customerId

FROM subscription GROUP BY customerId HAVING COUNT (customerId)=

(SELECT MAX(COUNT(customerId)) FROM subscription GROUP by customerId)); **ANS: Harry**

| subscriptionId | customerId | channelId |
|----------------|------------|-----------|
| 501            | 101        | 201       |
| 502            | 101        | 202       |
|                | 102        | 203       |
|                | 102        | 201       |
|                | 103        | 201       |

Q. Table:8ank

| Bankcode | BankName | Location  |
|----------|----------|-----------|
| B101     | ICICI    | New Delhi |
| 8102     | HSBC     | Bangalore |
| 8103     | HOFC     | Chennai   |
| B104     | SBI      | Mumbai    |

Table: AccountDetails

|       |           |
|-------|-----------|
| AC101 | Saving    |
| AC102 | Demat     |
| AC103 | Current   |
| AC104 | Recurring |

Table: CustAccountOetails

| CustAcld | BankCode | Acld  | Balance |
|----------|----------|-------|---------|
| CA01     | B101     | AC101 | 500000  |
| CA02     | B102     | AC102 | 550000  |
| CA03     | B101     | AC101 | 600000  |
| CA04     | B103     | AC103 | 700000  |
| CA05     | B104     | AC104 | 400000  |

**What be the output of below query?**

```
SELECT CustAcld, Balance, BankName, ad.Acld FROM CustAccountDetails cd
INNER JOIN Bank ba ON ba.BankCode = cd.BankCode INNER JOIN AccountDetails ad
ON cd.Acld = ad.Acld
WHERE Balance >
(SELECT AVG(Balance) FROM CustAccountDetails
INNER JOIN Bank
ON Bank.BankCode = CustAccoutDetails.BankCode
WHERE BankName = ba.BankName AND ad.AccType = 'saving';
```

**ANS:**

| CustAcld | Balance | Bank  | Acld  |
|----------|---------|-------|-------|
| CA03     | 600000  | ICICI | AC101 |

Q. What will be the output of the following query?

```
SELECT B.Bank Name AD.AccType SUM(Balance)
FROM CustAccountDetails CA INNER JOIN Bank B ON CA.BankCode =B.BankCode
INNER JOIN AccountDetails AD ON CA.Acld=AD.Acld
GROUP BY B.BankName, AD.AccType HAVING SUM(Balance) =
SELECT MINSUM Balance)) from custAccount Details GROUP BY BankCode,ACCid);
```

| Table: Bank |          |           |
|-------------|----------|-----------|
| BankCode    | BankName | Location  |
| B101        | ICICI    | New Delhi |
| B102        | HSBC     | Bangalore |
| B103        | HDFC     | Chennai   |
| B104        | SBI      | Mumbai    |

| Table: CustAccountDetails |          |       |         |
|---------------------------|----------|-------|---------|
| CustAccId                 | BankCode | AccId | Balance |
| CA01                      | B101     | AC101 | 500000  |
| CA02                      | B102     | AC102 | 550000  |
| CA03                      | B101     | AC101 | 600000  |
| CA04                      | B103     | AC103 | 700000  |
| CA05                      | B104     | AC104 | 400000  |

| Table: AccountDetails |           |
|-----------------------|-----------|
| AccId                 | AccType   |
| AC101                 | Saving    |
| AC102                 | Demat     |
| AC103                 | Current   |
| AC104                 | Recurring |

**ANS:**

| BankName | AccType   | Sum(Balance) |
|----------|-----------|--------------|
| SBI      | Recurring | 400000       |

Q. Consider following tables:

Table: Donor

| DONORID | DONORNAME | BLOODGROUP |
|---------|-----------|------------|
| D101    | Flor      | O+         |
| D102    | Raul      | B-         |
| D103    | Sam       | AB+        |
| D104    | Robert    | B+         |

Table: BloodTransaction

| TRANSID | DONORID | PATIENTID | TRANSDATE |
|---------|---------|-----------|-----------|
| T101    | D104    | P105      | 01-JUN-13 |
| T102    | D101    | P102      | 19-AUG-13 |
| T103    | D104    | P104      | 20-SEP-13 |
| T104    | D101    | P102      | 28-NOV-13 |
| T105    | D102    | P101      | 12-MAR-14 |

There is a requirement to display donor id, donor name of those donors who donated the blood.

Also display the patient id who have received blood from these donors.

The following query was written to solve the above requirement.

```
SELECT DISTINCT d.donorid, donorname, patientid FROM donor d INNER JOIN bloodtransaction b ON d.donorid = b.donorid;
```

**What is the output of the above query?**

| DONORID | DONORNAME | PATIENTID |
|---------|-----------|-----------|
| D104    | Robert    | P104      |
| D102    | Raul      | P101      |
| D101    | Flor      | P102      |
| D104    | Robert    | P105      |

**ANS:**

1. Consider the below products table,

SQL> SELECT \* FROM products;

SQL> SELECT \* FROM products;

| MANUFACTURER | MODELNO | PRODTYPE |
|--------------|---------|----------|
| ABC          | 1000    | PC       |
| ABC          | 1001    | PC       |
| ABC          | 1002    | Printer  |
| ABC          | 1003    | Laptop   |
| ABC          | 1004    | Printer  |
| ABC          | 1005    | Printer  |
| DEF          | 1006    | Laptop   |
| DEF          | 2000    | PC       |
| GHI          | 2001    | Laptop   |
| FGH          | 3000    | Laptop   |
| FGH          | 4000    | PC       |
| FGH          | 4001    | Printer  |
| FGH          | 4002    | Laptop   |

Note: modelno column is a PRIMARY KEY of products table.

Query:

SELECT manufacturer FROM products

GROUP BY manufacturer HAVING COUNT(modelno)-(SELECT MIN(COUNT(modelno))

FROM products GROUP BY prodtype):

What will be the output of the above query?

**Ans: no rows selected**

2. Consider the Trainee table with data as given below.

| TraineeID | Name  | Marks | Stream | Grade |
|-----------|-------|-------|--------|-------|
| 101       | James | 89    | JAVA   | A     |
| 102       | Ethan | 56    | JAVA   | A     |
| 103       | Rozy  | 78    | JAVA   | B     |
| 104       | Andy  | 78    | MS     | B     |
| 105       | Smith | 98    | SAP    | A     |

NOTE Eoindicates NL

Query:

SELECT COUNT(category) from books b LEFT JOIN members m ON

b.bookism bookid and category in (Joumar, 'Aptitude) where membername

How many rows will be fetched in the output when the above query gets executed?

**Ans: I1 and I2 both**

**Table: Books**

| Bookid | Bookname           | Category |
|--------|--------------------|----------|
| B101   | Science Revolution | Journal  |
| B102   | Brain Teasers      | Aptitude |
| B103   | IT Today           | Magazine |
| B104   | Tech World         | Journal  |
| B105   | Bizz world         | Magazine |

**Table: Members**

| Memberid | Membername | Bookid |
|----------|------------|--------|
| M201     | Anne       | B101   |
| M202     | Jack       | B104   |
| M203     | Maria      |        |
| M204     | John       | B103   |
| M205     | Sam        | B105   |

**NOTE: Empty cell indicates NULL.**

3.Query:

SELECT COUNT(category) from books b LEFT JOIN members i ON

b. bookid=m.bookid and category in ('Joumar', 'Aptitude') where membername like %%

How many rows will be fetched in the output when the above query gets executed?

**Ans: 1**

Consider the below SUBJECT and STUDENT table

**Table: SUBJECT**

| ColumnName     | DataType     | Constraint |
|----------------|--------------|------------|
| SubjectId      | Number(2)    | PrimaryKey |
| SubjectName    | Varchar2(30) |            |
| InstructorName | Varchar2(25) |            |

**Table: STUDENT**

| ColumnName  | DataType     | Constraint |
|-------------|--------------|------------|
| StudentId   | Number(3)    | PrimaryKey |
| StudentName | Varchar2(30) |            |
| SubjectId   | Number(2)    | ForeignKey |

Q. Which one of the below queries will fetch the student name and instructor name of only those students who have enrolled for a subject

**Ans: Select studentname,Instructorname from Student stu**

**Left outer Join Subject sub ON stu.subjectId=sub.subjectId;**

Q. Consider the following tables distributor and supply:

**Table: Distributor**

| DistId | DistName |
|--------|----------|
| D101   | Sam      |
| D102   | Paul     |
| D103   | Gary     |

**Table: Supply**

| SupplyId | DistId | Amount |
|----------|--------|--------|
| S101     | D101   | 500    |
| S102     | D102   | 5500   |
| S103     | D101   | 4500   |
| S104     | D103   | 3500   |

Consider the following query:

```
SELECT d.Distid, d.DistName
FROM Distributor d INNER JOIN Supply s ON s.Distid = d.Distid;
```

How many rows will the above query result in?

**Ans: 4**

Q. Consider the following query

```
SELECT SUBSTR(TO_DATE 01-02-2018
```

```
2018 month FROM DUAL-
```

What will be the output when the above query is executed?

Ans:

**MONTH**

**01-2018**

Q. Consider the following relational schema:

mobile (mobileid, model, cost batterylife)

mobileid is the candidate key and following are the functional dependencies:

mobileid → model, cost

model → batterylife

Which type of dependency exists in the above relation?

**Ans: Transitive dependency**

Q. Identify TWO CORRECT queries to fetch the desired output.

**Ans: 3.SELECT customer.customerid, NVL(booking.bookingid, 'Not Yet') AS**

**bookingid FROM customer LEFT OUTER JOIN booking**

**ON customer.customerid = booking.customerid;**

**4.SELECT customer.customerId, NVL booking.bookingId, Not Yet') AS**

**BookingId FROM customer FULL OUTER JOIN booking ON**

**customer.customerid - booking.customerid:**

Q. Consider the table flightdetails given below:

Query:

**SELECT DISTINCT flightid, capacity, basefare FROM flightdetails;**

How many rows will be fetched for the above query?

**Ans : 5**

Q. Consider a mongodb collection named employee

**db.employee.find();**

**{"\_id":1, "eno":1111, "dept":"Sales", "salary":1000}**

**{ "id":2, "eno" :1112, "dept":"Sales", "salary":2000}-**

**{"\_id":4, "eno":1114, "dept": "HR", "salary":5000})**

**{"\_id":6, "eno":1116, "dept": "HR", "salary":2000}**

Gray executed the following mongodb statement:

**db.employee.find({\$or:[{salary:{\$in: [2000, 5000]}},**

**{dept: "HR"}]}, {eno:1, dept:1, salary:1});**

Identify the CORRECT option from the following:

**Ans: the documents with eno : 1112, 1114 and 1116 would be included in the expected output**

David wants to create a table with CHECK constraint on age column. He has come up with two ways of implementing the check constraint as to

A) CREATE TABLE Customer

id NUMBER(S) PRIMARY KEY,

age NUMBER(S).

name VARCHAR2(20)

CONSTRAINT cust\_check CHECK[age]>=20 AND age<=50)

B).CREATE TABLE customer

id NUMBER(S) PRIMARY KEY,

age NUMBER(S) CONSTRAINT cust\_check CHECK[age]>=20 AND age<=50),

name VARCHAR2(20)):

Identify which of the above CREATE TABLE statement(s) will satisfy the given requirement

**Ans: Both A and B**

Q. There is a pet show being organized. The organizers have the following rules for pets and their owners.

If a pet is registered for the show then the pet must be associated to at least one owner

Multiple owners can be associated with a pet.

An owner cannot be associated with more than one pet

Choose the correct crow-feet notation that represents this relationship.

**ANS: Owner many to one pet**

Robert works on oracle and he has created the following table with data:

Which of the following query will result in the above output?

| ENAME         | DESIGNATION |
|---------------|-------------|
| James Potter  | PM          |
| Emily Rayner  | SE          |
| Jack Abraham  | SSE         |
| Ayaz Mohammad | TA          |

Robert needs to write a query to display the details in the fo

| ENAME         | DESIGNATION | MyRole |
|---------------|-------------|--------|
| James Potter  | PM          | 6      |
| Emily Rayner  | SE          | 3      |
| Jack Abraham  | SSE         | 3      |
| Ayaz Mohammad | TA          | 4      |

**Ans:**

**SELECT ENAME, DESIGNATION,**

**CASE WHEN DESIGNATION="SE OR DESIGNATION="SSE' THEN 3**

**WHEN DESIGNATION=TA. THEN 4**

**O WHEN DESIGNATION='PM' THEN 6**

**END as "MyRole**

**FROM EMPLOYEE;**

Q. Fill in the blanks with suitable words:

Consider the relation

sale date customer, product. vendor, vendorcity, salesrep)

(customer, product) is the Composite Candidate key and the following functional dependencies are also given

Do customer  $\rightarrow$  salesrep

vendor

$\rightarrow$  vendorcity

product  $\rightarrow$  vendor

Note: Enter an integer value to fill the blank

The given relation sale is in NF.

**Ans: 1NF**

Consider the table below named Employee

| EmpNo | Ename | Manager | Salary |
|-------|-------|---------|--------|
| 1001  | Smith | 1002    | 800    |
| 1002  | Jones | 1003    | 900    |
| 1003  | Bryan | NULL    | 1000   |

The following query was fired on this table;

```
SELECT e1.Ename AS X, e2.Ename AS Y  
FROM Employee e1 INNER JOIN Employee e ON e1.EmpNo = e.Manager,
```

Select the option that best describes the output

**Ans: X would display the reporting employee names, Y would display their reporting manager names**

Which of the below options are FALSE with respect to the DEFAULT cause used in CREATE TABLE command?

[Choose two correct options]

**ANS: A column can be given the default value by using DEFAULT option**

**DEFAULT option can be provided to any attribute**

Q. Tom executed the below SQL statements sequences

```
INSERT INTO customer VALUES(1003, 'Mike', 8001);
```

```
INSERT INTO customer VALUES(1004, Jim', 8002);
```

```
INSERT INTO customer VALUES(1006, 'Anderson', NULL);
```

```
COMMIT;
```

```
SELECT * FROM customer
```

How many rows will be fetched when the above SELECT query is executed?

**Ans 3**

Q. A Group of research enterprises decided to collaborate for COMID-19 vaccine research, using cloud services. Which cloud deployment models make

Ans:

**Hybrid Cloud(1st preference)**

**Community Cloud**

| bookid | amount | numberofcopies |
|--------|--------|----------------|
| B101   | 250    | 2500           |
| B102   | 180    | 1800           |
| B103   | 200    | 1000           |
| B104   | 500    | 1000           |
| B105   | 200    | 400            |

For the below written query, predict the output.

SELECT \* FROM manuscript ORDER BY amount ASC, numberofcopies DESC

Ans :

**B105 will be second record**

Q.

| purchaseid | customerid | compid | discount | purchasedate | paymentmode | billamount |
|------------|------------|--------|----------|--------------|-------------|------------|
| P101       | C101       | COM101 | 8        | 5-Jun-16     | CASH        | 34951      |
| P102       | C106       | COM107 | 10       | 7-Mar-16     | CARD        | 46195      |
| P103       | C102       | COM105 | 7        | 8-Jul-16     | CARD        | 35796      |
| P104       | C103       | COM106 | 5        | 8-Oct-16     | CARD        | 34057      |
| P105       | C103       | COM106 | 10       | 10-Oct-16    | CASH        | 32265      |
| P106       | C104       | COM102 | 6        | 11-Jul-16    | CASH        | 40232      |
| P107       | C105       | COM103 | 5        | 15-Jul-16    | CARD        | 54997      |
| P108       | C106       | COM105 | 8        | 7-Mar-16     | CASH        | 35411      |

```
SELECT p1.customerid p1.compid FROM purchase p1 INNER JOIN purchase p2  
ON TO CHAR(p1.purchasedate, 'MON') = TO CHAR(p2.purchasedate, 'MON')  
AND p1.customerid = p2.customerid AND p1.purchaseid <> p2.purchaseid;
```

How many rows will be fetched in the output when the above query is executed?

**Ans : 4**

```
UPDATE teacher SET Salary=5000/teacherid=1304 WHERE aty="Mysore"
```

```
UPDATE teacher SET teacherid=7310 WHERE city Delhi
```

```
COMMIT
```

```
ROLLBACK
```

```
DELETE FROM teacher WHERE teacherid=1306;
```

```
ROLLBACK
```

```
END
```

What will happen after the execution

of above statements?

**Ans: Both the updates are reflected but delete will not be reflected in the database**

Q. Consider a Patient table with attributes patientid (primary key). patientname, city, dateofbirth and phone. Except patientid como

IDX1 - patientid

IDX2 - patientname, dateofbirth

IDX3 - dateofbirth, phone

Which of the following queries will result in INDEX UNIQUE SCAN?

**Ans: WHERE patientid = P1007 AND dateofbirth=30- Mar-1995**

Q. Cloud computing describes the on-demand delivery of resources over the web. Which among the following describe features of cloud computing

**Ans: All of the above**

Q. Which of the following queries will execute successfully?

[Choose 2 correct answers]

**Ans : INSERT INTO mobiledetail (modelno, price) VALUES (M1001, 10000);**

**INSERT INTO mobiledetail(brand, sensor, price, modelno) VALUES ('Motog', Yes, 12000 ,M1004);**

Q. execute the below SQL statements sequentially on the existing table

INSERT INTO customer VALUES(1003, "Mike", 8001);

INSERT INTO customer VALUES(1004, "Jim", 8002);

INSERT INTO customer VALUES(1006, "Anderson", NULL);

COMMIT;

SELECT \* FROM customer

How many rows will be fetched when the above SELECT query is executed?

**Ans : 3**

Q. Which of the below options are FALSE with respect to the DEFAULT clause used in CREATE TABLE command

[Choose two correct options]

**Ans: DEFAULT option can be provided only for NOT NULL attributes.**

**The data type of column and default expression need not be same.**

Q. Which of the following queries will execute successfully?

(Choose 2 correct answers)

**partial ans: INSERT INTO mobiledetail (modelno, brand, manufacturedate, sensor, price) VALUES (M1003, M**

**final Ans : INSERT INTO mobiledetail(brand, sensor, price, modelno) VALUES (Motog: Ves: 12000 M1004);**

Q. Which among the following are used to enforce domain Integrity in a table in database?

**Ans: Primary key              Foreign key              Check Constraints**

Q. Which of the following queries will result in Table Scan

Choose TWO correct options

**WHERE category='bulkorder';**

**WHERE orderid <>1001**

Q. SafeData is an application hosted by an organization to store sensitive data of their clients

Choose the solution that is compliant with the above requirements?

**Ans: Store data in Google Compute Engine**

Q. An enterprise provides human resource management services such as reskilling, mock interviews, etc., to students from several universes. They come

Which solution meets the requirements?

**Ans: Deploy the workload in the public cloud**

Q. Saledata is an application hosted by an organization to store sensitive data of them

Choose the solution that is compliant with the above requirements?

**Ans: Store data in Google Compute Engine.**

Q. Which among the following is NOT a cloud service model?

**Ans: Backend as a service**

Q. Which among the following are used to enforce domain integrity in a table in database?

**Ans: Datatypes                          Check Constraints**

Q. Which of the following statements are TRUE with respect to agile methodology

1. Changes are always welcome
2. Emphasizes more communication and need based documentation
3. Single delivery after testing

**Ans : only(I) and (ii).**

Q. Traditional approach to software development is suitable when:

1. Requirements are explicit and do not change
2. Requirements are not clear
3. time to deliver the product to market is short

**Ans : only 1.**

#### **DBMS OBJECTIVE FA( POSSIBLE ANSWERS)**

\*\*\*\*\* **SURE CORRECT** \*\*\*\*\*

**Q) Tables Patient and doctor have M : N relationship..... with figure**

**Ans - (C) join\_pd resides in a newly created table**

**Q) Which of the following statements TRUE with respect to Agile Methodologies?**

- (i) Ensures early ROI
- (ii) Risk mitigation and Recovery through short deliveries
- (iii) High Quality and Productivity can not be guaranteed due to frequent deliveries.

**Ans- (C) Only (i) and (ii)**

**Reference : Lex -> SE -> Agile -> S/W Dev. Approach -> Page 7**

**Q) Which of the following statements TRUE with respect to Agile Methodologies?**

- (i) Changes are always welcome
- (ii) Emphasizes more communication and need based documentation.
- (iii) Single delivery after testing

**Ans- Only (i) & (ii) Reference : Lex -> SE -> Agile -> S/W Dev. Approach -> Page 6**

**Q)** An online apparel store is deployed on-premise. The traffic forecast for the apparel store application varies based on various parameters. What are the implications of the on-premise solution?

- (A) Under-utilization of on-premise servers reduces the ROI.
- (B) On-premise servers maybe overloaded with the Traffic.
- (C) Limited Scalability in the on-premise environment, leads to loss of business continuity
- (D) All of the Above

**Ans- (D) All of the above**

**Reference: Software Engineering**

**Q)** An attacker tries to retrieve the data and exploit the websites by altering the Database by inputting queries.

- (A) Broken Authentication
- (B) SQL Injection
- (C) XML External Entities
- (D) Security Misconfiguration

**Ans - (B) SQL Injection**

**Reference : Lex -> Introduction to Cyber Security -> Secure Coding OWASP Top 10 -> A1 Injection**

**Q)** For a symmetric cryptography system having n=10 users, how many secret keys are required?

**Ans- (C) 45**

**Logic - For Symmetric Cryptography:**  $n*(n-1)/2$  keys

**For Non-Symmetric Cryptography:**

2\*n keys

**Q)** Which of the following are FALSE with respect to the DEFAULT clause....

- (A) DEFAULT option can be provided only for NOT NULL attributes.
- (B) A column can be given the default value by using the DEFAULT option.
- (C) The data type of column and default expression need not to be same
- (D) DEFAULT option can be provided to any attribute.

**Ans - (A) and (C)**

**Q)** In a relationship between two entries user and mobile .....

**Crow foot notation** .....

**Ans- (C)** 

**Q)** An employee sends an objectionable email to his colleagues. But the later employee lies that he didn't send this letter. This is known as

- (A) Spoofing
- (B) Tampering
- (C) Repudiation
- (D) Denial of Service

**Ans- (C) Repudiation**

**Reference : Cyber Security**

**Q) Ans-**



**Q)**

**Ans- (B) SELECT SUBSTR(TO\_CHAR(dob, 'MM/DD/CCYY'), 1, 2) DOB FROM employee (D)  
SELECT TO\_CHAR(dob, 'MM') DOB FROM employee**

**Q) CREATE TABLE item(**

```
itemid VARCHAR2 (6) PRIMARY KEY,      itemname  
VARCHAR2 (10) UNIQUE NOT NULL,      itemdesc  
VARCHAR2 (20) UNIQUE );
```

Which of the following statements is TRUE with respect to above command?

**Ans- (D) One primary key will be created**

**Q) Consider a Patient table with attributes patientid(primary key), patientname, city, dateofbirth and phone. Except patientid no columns are ....**

IDX1 - patientid

IDX2 - patientname, dateofbirth

IDX3 - dateofbirth, phone

Which of the following queries will result in INDEX UNIQUE SCAN?

- (A) WHERE city <> 'Mumbai' AND dateofbirth > '30-Mar-1995'
- (B) WHERE patientid = 'P1007 AND dateofbirth > '30-Mar-1995'
- (C) WHERE patientname = 'Sam' AND dateofbirth > '30-Mar-1995'
- (D) WHERE patientname LIKE 'R%'

**Ans- (B) WHERE patientid = 'P1007 AND dateofbirth > '30-Mar-1995'**

**Q) SoftCenter, an IT Company, is planning to use Software Tools and Framework on Cloud.**

- A) Google Compute Engine on GCP
- B) Google App Engine on GCP
- C) Citrix Xenserver

**Ans - (B) Google App Engine on GCP**

**Explanation : Google App Engine is a PaaS and Google Compute Engine is IaaS.**

**Q) Out of the following what are the characteristics of Anomaly-based IDS? (Select 2 Correct Answers)**

- A) It models the normal usage of network and creates a profile
- B) It doesn't detect novel attacks
- C) Anything unusual happening from the profile is not assumed to be intrusion activity
- D) Observes normal behavior of users to create a behavior profile.

**Ans- (A) It models the normal usage of network and creates a profile (D) Observes normal behavior of users to create a behavior profile.**

## **Explanation/Reference : Intrusion Detection System**

**Q)** The test team is carrying out performance testing for a web based Travel Management System, for ..... "The system shall support access to 100 travel agents and 100000 Travelers at any time". Which of the following is the testing needed for the above requirement?

- (A) Load Testing
- (B) Endurance Testing
- (C) Functional Testing
- (D) Regression Testing

**Ans - (A) Load testing**

## **Reference - Software Engineering -> Types of Software Testing**

**Q)** Identify the Activities among the following that are carried out during the coding phase.

(Choose exactly 2 Appropriate options)

- (A) Compilation of Source Code
- (B) Documenting user manual
- (C) Arriving at SRS
- (D) Finding user needs
- (E) Self - Testing of Implemented Code

**Ans - (A) Compilation of source code (E) Self-testing of implemented code**

## **Reference : Software Engineering**

**Q)** A startup is looking for an office automation solution to help its staff collaborate and work efficiently. Which of the following fits best?

**Ans: - Deploy a custom-based solution on PaaS offering from cloud**

**Q)** Which of the following is true regarding symmetric cryptography?

- (A) Symmetric cryptography uses public-private keys
- (B) Requires secure exchange of keys before establishing secure communication.
- (C) Symmetric key cryptography provides non-repudiation
- (D) Symmetric key cryptography provides message integrity

**Ans- (B) Requires secure exchange of keys before establishing secure communication.**

**Q)** An enterprise provides human resource management services such as reskilling, mock interviews, etc, to study premise costs. Which solution meets the requirement?

- (A) Deploy the workload in the public cloud
- (B) Keep all the data in an on- premise environment and push th apps to the public cloud
- (C) Leverage private cloud computing services

**Ans - (B) Keep all the data in an on- premise environment and push th apps to the public cloud**

## **Reference: Cloud Computing**

**Q)** Cloud computing describes the on-demand delivery of resources over the web. Which among the following describes features of Cloud.

- (A) Rapid Scaling
- (B) Dynamic Allocation of Resources
- (C) Reduced Management Overhead
- (D) All of the Above

**Ans - (D) All of the above**

**Reference : Lex -> Introduction to Cloud Technologies -> Cloud Computing and its Capabilities**

**Q) A firewall is used to inspect \_\_\_\_\_ that are going in and out of the Computer**

- (A) User Requests
- (B) Updates
- (C) Connections
- (D) Data Packets

**Ans - (D) Data packets**

**Reference : Cyber Security**

**Q) An enterprise has identified other agencies to collaborate with, on common business objectives. Which deployment model should be used?**

- (A) Community Cloud
- (B) Private Cloud that exclusively operates for the requesting Agency
- (C) Public Cloud
- (D) Hybrid Cloud

**Ans- (A) Community cloud**

**Reference : Lex -> Introduction to Cloud Technologies -> Cloud Deployment models**

**Q) Effort involved in a project which started on 15th Jan 2013- 1st Oct 2013....**

**Ans - 25**

**Q) Which of the following security controls can be used to mitigate SQL Injection vulnerability.**

- (A) Construct queries using Prepared Statement.
- (B) Robust input validation.
- (C) Using HTTPS so that communication between client and server is encrypted.
- (D) Construct Queries using String Concatenation.

**Ans- (A),(B) & (C)**

**Reference : Lex -> Introduction to Cyber Security -> Secure Coding OWASP Top 10 -> A1  
Injection Risks Root Causes and its Mitigation -> Page 2**

**Q) A group of research enterprises decided to collaborate COVID-19 vaccine research, using cloud services. Which cloud Deployment should be used?**

- (A) Private Cloud
- (B) Public Cloud
- (C) Community Cloud
- (D) Hybrid Cloud

**Ans - ( C) Community Cloud**

**Reference : Lex -> Introduction to Cloud Technologies -> Cloud Deployment Models**

Q) Consider the table **product** given below

Table Product

| <b>productid</b> | <b>productname</b> | <b>manufacturedate</b> | <b>expirydate</b> |
|------------------|--------------------|------------------------|-------------------|
| P1001            | Hairgro Shampoo    | 15-Jan-16              | 15-Jul-17         |
| P1002            | Jones Mixed Jam    | 25-Jan-16              | 25-Jul-16         |
| P1003            | Skingrow Soap      | 20-Apr-16              | 25-Oct-16         |
| P1004            | Oleano Olive soap  | 16-Mar-17              | 16-Sep-17         |
| P1005            | Sweet n Spice Sauc | 25-Mar-17              | 20-Aug-17         |

Query

```
SELECT * FROM product WHERE ADD_MONTHS(manufacturedate, 6)>= expirydate
```

How many rows will be fetched when the above query is executed?

**Ans- 3**

Q)

| <b>companyname</b> | <b>location</b> | <b>ranking</b> |
|--------------------|-----------------|----------------|
| TCS                | Delhi           | 2              |
| Infosys            | Mysore          | 1              |
| Accenture          | Mumbai          | 5              |
| SAP labs           | Chennai         | 4              |
| Deloitte           | Hyderabad       | 3              |

What will be the third row when the following query is executed?

```
SELECT companyname FROM company ORDER BY location DESC;
```

**Ans- Deloitte**

Q) Consider the table **purchase** given below

| <b>purchaseid</b> | <b>customerid</b> | <b>compid</b> | <b>discount</b> | <b>purchasedate</b> | <b>paymentmode</b> | <b>billamount</b> |
|-------------------|-------------------|---------------|-----------------|---------------------|--------------------|-------------------|
| P101              | C101              | COM101        | 8               | 5-Jun-16            | CASH               | 34951             |
| P102              | C106              | COM107        | 10              | 7-Mar-16            | CARD               | 46195             |
| P103              | C102              | COM105        | 7               | 8-Jul-16            | CARD               | 35796             |
| P104              | C103              | COM106        | 5               | 8-Oct-16            | CARD               | 34057             |
| P105              | C103              | COM106        | 10              | 10-Oct-16           | CASH               | 32265             |

|      |      |        |   |           |      |       |
|------|------|--------|---|-----------|------|-------|
| P106 | C104 | COM102 | 6 | 11-Jul-16 | CASH | 40232 |
| P107 | C105 | COM103 | 5 | 15-Jul-16 | CARD | 54997 |
| P108 | C106 | COM105 | 8 | 7-Mar-16  | CASH | 35411 |

```

SELECT p1.customerid, p1.compid      FROM purchase p1  INNER JOIN purchase p2
ON TO_CHAR( p1.purchasedate, 'MON') = TO_CHAR    ( p2.purchasedate, 'MON') AND
p1.customerid = p2.customerid AND   p1.purchaseid <> p2.purchaseid

```

Q. How many rows will be fetched when the above query is executed?

**Ans- 4**

**Output -**

| CUSTOMERID | COMPID |
|------------|--------|
| C103       | COM106 |
| C103       | COM106 |
| C106       | COM105 |
| C106       | COM107 |

\*\*\*\*\* MAYBE CORRECT \*\*\*\*\*

Q) Which of the following describes the features of PaaS? (Multi- correct )

- (A) Shared Infrastructure => Vote 1
- (B) Dedicated Infrastructure
- (C) Pre-built runtime
- (D) Reduced deployment overhead => Vote 1

**Ans - A,C // As per**

**Explanation:** PaaS provides Platform as a service i.e. it provides resources (hardware) as well as application (runtime environment) for the users.

Q) Most employees in an organisation are only granted "Standard User" rights on their computers. Only some employees including IT Administration are granted "Administrator User" rights. What is the Rationale Behind this?

- (A) Users must be granted the minimum level access that is required to carry out their required routine activities
- (B) Software licensing does not allow all users in an organization to have "Administrator User" rights.
- (C) The reason is adherence to Defence in Depth strategy which says users should have the minimum level of access to a resource
- (D) The minimum number of users must be granted the maximum level of access.

This ensures access violations are reduced. This approach is called Secure Default Access.

**Ans - ?????**

\*\*\*\*\* INCOMPLETE QUESTION \*\*\*\*\*

Q) The following transaction logic is executed on the trip table

```
BEGIN  
UPDATE trip SET amount.....  
.....
```

Ans - (A) Both the update and delete are reflected in the database.

Q) .....

eccno and floorno is COMPOSITE PRIMARY KEY and employeno is the FOREIGN... ....

Ans- (A) INSERT INTO ecc VALUES ( 'E75', 2, 5894) (D) INSERT INTO employee(employeno) VALUES (5890)

Q) .....

```
SELECT p.projectid, p.projectname, a.empid FROM project p  
FULL OUTER JOIN allocation a ON p.projectid=a.projectid IS NOT....
```

How many rows will be fetched when the above query is executed?

Ans- (B) 3

Q) .....

SELECT COUNT( DISTINCT routeid ) FROM service GROUP BY acfacility;

How many rows will be fetched when the above SELECT query is executed?

Ans- (A) 5 // Don't know (C) 2 // which one

Q) .....

SELECT DISTINCT qtyavailable FROM toys

WHERE price < ( SELECT MAX(price) FROM toys WHERE qtyavailable > 150 )

How many rows will be fetched when the above query is executed?

Ans- (C) 2

Q) .....

SELECT customername FROM customer c INNER JOIN.....

WHERE accounttype IN ( SELECT accounttype FROM .....)

(SELECT MAX(COUNT(accounttype)) FROM account GROUP BY .....

How many rows(s) will be fetched when the above query is executed?

Ans- (D) 2

**Q)** .....

```
SELECT empno, empname FROM employee e1 WHERE salary >=
(SELECT AVG(salary) FROM employee e2 WHERE e1.location=e2.location AS.....
```

How many rows(s) will be fetched when the above query is executed?

**Ans- (D) 3**

**Q)** .....

```
SELECT s1.shopid, s1.salesamount FROM shop s1, shop s2 WHERE s1.dateofsale=s2.dateofsale
```

How many rows(s) will be fetched when the above query is executed?

**Ans- (B) 4**

**Q)** .....

```
INSERT INTO book VALUES('P1005', 'Passion Spent', 'C')
```

Choose the option that correctly identifies the outcome of their statements

**Ans - (C) Tom insert fails due to CHECK constraint violation whereas Dick's insert also fails due to CHECK.....**

**Q)** .....

```
DELETE FROM employee WHERE compid IN(20, 30);
```

```
DELETE FROM computer WHERE model = 'Edge'
```

Which of the following statements are TRUE when the above queries are executed sequentially?

**Ans- (B) There will be two computers of make 'Dell' (D) There will be two Male employees**

**Q)** .....

Maria writes the following query.....

```
SELECT studentname, subject, marks FROM student ORDER BY subject, marks;
```

Which of the following STUDENTNAME appears in the third record of the output? **Ans- (C) Louise**

**Q)** .....

select \* from customer where gender in ('M', 'F') and dob like '%Mar%'; Which of the following index will be used for the above query?

**Ans- (C) No index will be used**

**Q)**

**Ans-** `SELECT DISTINCT p.prodid, p.name, pp.custid FROM product p LEFT JOIN purchase pp ON p.prodid = pp.prodid`

**Q)**

**Ans - (D)**

`SELECT SUBSTR( studentid, 2) STUDENTID, LOWER ( studentname) || '-' || studentid) STUDENT`

`NVL(TO_CHAR(marks), 'NA') MARKS FROM STUDENT WHERE studentname LIKE '%e'`

**Q)**

**Ans-** (B) `FROM product p LEFT OUTER JOIN orders o ON p.productid=o.productid`

`GROUP BY p.productid, o.paymode`

(D) `SELECT DISTINCT p.productid, o.paymode, SUM(p.price) totalprice`

`FROM orders o RIGHT OUTER JOIN product p ON p.productid=o.productid`

`AND payment IS NOT NULL GROUP BY p.productid, o.paymode`

**Q)**

**Ans-** (C) `ALTER TABLE student DROP (country) ALTER TABLE student ADD (cgpa NUMBER(3, 2), dept CHAR(3))`

**Q)**

**Ans-** (D) `SELECT ename, e.managerid FROM employee e LEFT OUTER JOIN manager m ON e.managerid = m.mangerid WHERE e.managerid IS NOT NULL`

**Q)**

**Ans-** (C) `where arrivalcity='Kolkata' and trainname LIKE '%s'`

**Q) .....**

- (i) Scribe
- (ii) Reviewer
- (iii) Author
- (iv) Moderator

**Ans-** (C) (i)-(c); (ii)-(a); (iii)-(d); (iv)-(b)

**Q)**

**Ans-** (B) `teacher( teacherid, teachernname, salary )`

`Subject ( subjectid, subjectname )`

`Allocation ( teacherid, subjectid, deliverymode, fee )`

**Q) .....**

Which will be the resulting relational schema after converting to 3NF?

**Ans- (C)** player ( playerno., playername, playertype ) game( gamename, gametype, duration, amount ) discount( playertype, gamename, discount )

**Q)**

**Ans- (C)**

| DATE1     | DATE2     |
|-----------|-----------|
| 26-DEC-17 | 26-MAR-17 |

**Q)**

**Ans- (D)**

| BOOKNAME   | NOOFSSTUDENTS |
|------------|---------------|
| Networking | 2             |

**Q)**

**Ans- (C)**

| TOYID | TOYTYPENAME  | TOYCATEGORY |
|-------|--------------|-------------|
| T101  | ActionFigure | B           |
| T102  | Boardgame    | A           |
| T103  | SportGame    | C           |
| T104  | Others       | C           |
| T105  | SoftToy      | A           |
| T106  | BoardGame    | B           |

**Q)**

| Column Name     | Data Type and Size | Constraint         |
|-----------------|--------------------|--------------------|
| modelno         | VARCHAR2(5)        | PRIMARY KEY        |
| brand           | VARCHAR2(20)       |                    |
| manufacturedate | DATE               | DEFAULT SYSDATE    |
| sensor          | CHAR(3)            | CHECK(sensor.....) |

|       |         |  |
|-------|---------|--|
| price | INTEGER |  |
|-------|---------|--|

- (A) INSERT INTO mobiledetail(model, price) VALUES(M1001, 10000);  
 (B) INSERT INTO mobiledetail VALUES (M1002, 'Nokia', 25-Aug-1993, 'Yes', 10000)  
 (C) INSERT INTO mobiledetail(brand, sensor, price, modelno) VALUES('Motog.....')

Ans- Either (A) AND (B) (more pressure) || (B) AND (D)

Q)

Ans- (C)

| BOOKID | BOOKNAME              |
|--------|-----------------------|
| 303    | Sense and Sensibility |
| 302    | Persuasion            |
| 304    | Lady Susan            |
| 301    | Emma                  |

Q)

|       |       |       |            |
|-------|-------|-------|------------|
| ..... | ..... | ..... | .....      |
| C901  | P802  | HSBC  | UK         |
| C902  | P803  | SWD   | Canada     |
| C903  | P805  | ICICI | California |
| C904  | P803  | SWD   | Canada     |
| C905  | P806  | RBS   | Netherland |
| C906  | P807  | Amron | Canada     |

Ans- (B) DELETE FROM client WHERE clientlocation = 'Canada AND clientname='SWD'

(D) DELETE FROM project WHERE projectcode IN ('P804', 'P801')

Q)

Ans- (B)

| PROJECTDOMAIN | AVGSAL | TOTALBONUS |
|---------------|--------|------------|
| Insurance     | 40000  | 1300       |
| Telecom       | 21667  | 600        |

**Q)**

**Ans- (C)**

| STUD_NAME | COURSEID |
|-----------|----------|
| Katherine | C3       |

**Q)**

**Ans- (B)**

| CUSTOMERID | CUSTOMERNAME |
|------------|--------------|
| C703       | Phillip      |
| C702       | Scott        |
| C701       | Halen        |

**Q)**

**Ans- (C)**

| CUSTNAME | CUSTTYPE   |
|----------|------------|
| Felix    | PRIVILIGED |
| Jack     | REGULAR    |

**Q)** Consider a mongodb collection **book** given below

..... db.book.update({\_id : 903}, {\$set: { Rating:  
8.....

How many documents will be retained in the collection book after executing the above query **Ans- (B) 3**

**Q)** Consider table trainee and result

| traineeid | name    | city |
|-----------|---------|------|
| T101      | Sam     | -    |
| T102      | James   | -    |
| T103      | Ritchie | -    |
| T104      | John    | -    |
| T105      | Jordan  | -    |

SELECT t.training, name

FROM trainee t INNER JOIN result r ON t.resultid = r.resultid

WHERE cgpa >(SELECT cgpa FROM result where traineeid = 'T102')

**ANS:**

|      |        |
|------|--------|
| T104 | John   |
| T105 | Jordon |

**Q)** Which of the following is not a Cloud Service Model?

**ANS: backend as a service**

**Q)** Identify the minimum number of operation required to get the desired values

Table: book

| studid | bookid | takendate | returndate | fine     |
|--------|--------|-----------|------------|----------|
| 10001  | B1005  | 25-Jan-16 | 9-Feb-16   | 10       |
| 10004  | B1003  | 15-Jan-16 | 30-Jan-16  | 15       |
| 10003  | B1004  | 25-Jan-16 | 9-Feb-16   | — NULL — |
| 10001  | B1004  | 10-Feb-16 | 14-Feb-16  | 10       |
| 10002  | B1002  | 3-Jan-16  | 18-Jan-16  | 5        |

**Desired Table**

Table: book

| studid | bookid | takendate | returndate | fine |
|--------|--------|-----------|------------|------|
| 10001  | B1005  | 25-Jan-16 | 9-Feb-16   | 30   |
| 10004  | B1003  | 15-Jan-16 | 30-Jan-16  | 35   |
| 10001  | B1004  | 10-Feb-16 | 14-Feb-16  | 10   |
| 10002  | B1002  | 3-Jan-16  | 30-Mar-16  | 25   |

Identify the **minimum number of operations** required to get the desire

Normal scenario would be 1 delete and 2updates

Delete from book where bookid=1003

Update book set fine= fine+20 where bookid in (B1002, B1003, B1005)

Update book set returndate =to\_date('30-mar-16') where studid=10002

**ANS: 1 delete and 2 update**

**Q)** Identify activities among of the following that are carried out during the coding phase(build phase)

**ANS: Compilation of Source Code, Self testing and Implementing Code**

**Q)** Consider the table employee and unit given below:

Table: employee

| empid | empname | unitid | designation |
|-------|---------|--------|-------------|
| 101   | John    | 503    | SE          |
| 102   | Matthew | 502    | TA          |
| 103   | Eliza   | 501    | SE          |
| 104   | Steve   | 502    | SSE         |
| 105   | Alice   | 502    | TA          |

Table: unit

| unitid | unitname |
|--------|----------|
| 501    | ECS      |
| 502    | ENG      |
| 503    | FSM      |
| 504    | IVS      |

SELECT unitname,COUNT(empname) empcount  
FROM employee e RIGHT JOIN unit u ON e.unitid = u.unitid

AND designation = 'SE' GROUP BY unitname

**ANS:**

| unitname | empcount |
|----------|----------|
| ECS      | 1        |
| ENG      | 0        |
| FSM      | 1        |
| IVS      | 0        |

**Q)** Consider the relational schema along with the functional dependencies given below:

**Purchase(custid,custname,custtype,contactno,productid,price,amountpaid,discount)** Productid  $\rightarrow$  price

Custid  $\rightarrow$  custname,custtype,contactno

Custid,productid -> amountpaid

Custtype -> discount

**ANS: (C) Customer (custid,custname,custtype,contactno, discount) Product (productid,price)  
Purchase (Custid,productid, amountpaid)**

**Q) Consider table customer given below:**

| custid | custname | location |
|--------|----------|----------|
| c101   | Jack     | Delhi    |
| c102   | John     | Banglore |
| c103   | Sam      | Mumbai   |
| c104   | Andrew   | Banglore |
| c105   | Anne     | Delhi    |
| c106   | Maria    | Kolkata  |
| c107   | Jenny    | Banglore |

**Querry:**

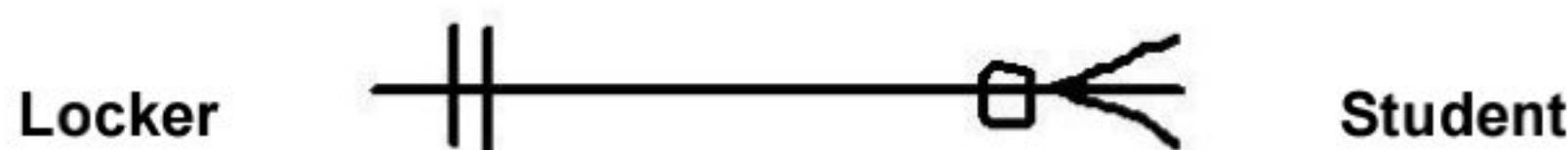
**SELECT c1.customid,c1.customername FROM customer c1 JOIN customer c2 ON c1.location = c2.location  
AND c1.customername LIKE '%a%' AND c1.customerid <> c2.customerid**

**OPTIONS: 3,1,4,2**

**ANS: only single row containing c101 Jack**

**Q) In a relationship between 2 entities locker and student , one and only one locker can be assigned to zero or many student.**

**ANS:**



**Q) Consider the table customer given below:**

| customername | city     | paymentmode |
|--------------|----------|-------------|
| beth         | Chicago  | Credit card |
| adam         | New York | Debit Card  |
| bucky        | Chicago  | Debit Card  |
| barbara      | London   | Online      |

|        |       |        |
|--------|-------|--------|
| verina | Paris | Online |
|--------|-------|--------|

Query: **SELECT customername,city FROM customer ORDER BY 2,paymentmode DESC      ANS:**

**ANS: 1st Bucky,4th Adam**

**Q)** Consider the table customer given below:

| toyid | toynname     | Quantity | price |
|-------|--------------|----------|-------|
| t101  | Army Men     | 246      | 2100  |
| t102  | Finger Paint | 158      | 1500  |
| t103  | Magic 8 ball | 207      | 2500  |
| t104  | Legos        | 243      | 3000  |
| t105  | Weebles      | 174      | 1800  |
| t106  | Glow Stick   | 231      | 1100  |
| t107  | Barbie       | 315      | 3500  |
| t108  | Magna Doodle | 129      | 2800  |

Query: **SELECT \* FROM toys WHERE (LOWER(toynname)) LIKE '%m%' OR LOWER(toynname) LIKE '%w%' AND quantity > 180**

How many rows will be fetched?

**ANS: 3 rows (T101 T103 T106)**

**Q)** Consider the table customer,vehicle and booking given below having the information of the vehicles booked by the customers by paying initial bookingamount:

Table:customer

| customerid | name    |
|------------|---------|
| c101       | Richard |
| c102       | Jason   |
| c103       | Xavier  |
| c104       | Albert  |

Table:vehicle

| vehicleid | vehiclemodel |
|-----------|--------------|
| v101      | Vespa        |
| v102      | Activa       |
| v103      | Gusto        |
| v104      | Maestro      |

Table:booking

| bookingid | customerid | vehicleid | bookingamount |
|-----------|------------|-----------|---------------|
| b101      | c101       | v104      | 2000          |
| b102      | c102       | v102      | 1500          |
| b103      | c103       | v104      | 1000          |
| b104      | c102       | v101      | 1400          |
| b015      | c101       | v101      | 1000          |

Query:

```
SELECT DISTINCT vehiclemodel, bookingid, bookingamount
FROM vehicle v INNER JOIN booking b
ON v.vehicleid = b.vehicleid AND bookingamount > 1000
FULL OUTER JOIN customer c ON b.customerid = c.customerid
```

How many rows will be fetched when the amount query is executed?

**ANS: 4 rows**

**@Commander\_verified**

| VEHICLEMODEL | BOOKINGID | BOOKINGAMOUNT |
|--------------|-----------|---------------|
| Maestro      | B101      | 2000          |
| -            | -         | -             |
| Activa       | B102      | 1500          |
| Vespa        | B104      | 1400          |

Download CSV  
4 rows selected.

Verified via script.

**Q)** Consider the tables book and member given below:

Table : book

| bookid | bookname           | category | price |
|--------|--------------------|----------|-------|
| b101   | Science Revolution | Journal  | 500   |
| b102   | Brain Teasers      | Aptitude | 250   |
| b103   | India Today        | Magazine | 400   |
| b104   | Tech World         | Journal  | 250   |
| b105   | Bizz world         | Magazine | 300   |
| b106   | Math magix         | Aptitude | 350   |

Table:member

| memberid    | membername    | bookid      |
|-------------|---------------|-------------|
| m201        | Anne          | b101        |
| <b>m202</b> | Steve         | b102        |
| m203        | John          | b101        |
| <b>m204</b> | <b>Robert</b> | <b>b103</b> |
| <b>m205</b> | Sam           | b104        |
| m206        | Jane          | b105        |
| <b>m207</b> | Albert        | b105        |
| <b>m208</b> | James         | b102        |

**Query:**

```
SELECT m.membername,b.bookname FROM member m, book b WHERE b.bookid = m.bookid
AND m.membername NOT LIKE '%n%' AND b.price >= (SELECT avg(b1.price) FROM member
m1,book b1 WHERE m1.bookid = b1.bookid AND b1.category = b.category) Options:1,2,4,3
ANS: 3 rows is the answer @verifiedby_Commander @ verified by Mojojojo
```

| MEMBERNAME | BOOKNAME      |
|------------|---------------|
| Robert     | India Today   |
| Steve      | Brain Teasers |
| James      | Brain Teasers |

Download CSV 3 rows selected.

**Q)** A data analytics enterprise uses its own portal to have discussion, collaborations, and negotiation with the client over ongoing and upcoming projects. In the quest to go global they decide to deploy a cloud-based solution. Which of the following are the features of the cloud computing model[choose any 2]

**ANS: Pay as you go model, Instant provisioning**

**Q)** How can an employee conclude that security has been violated in the organisation?

**ANS: when any of the CIA triad principles are violated**

**Q)** By exploiting a vulnerability; a standard user can execute an operation that only a system administrator can execute. What kind of attack happened here?

**“ANS: Elevation of privileges**

**Q)** Traditional approach to software development is suitable when:

- (i) requirements are explicit and don't change
- (ii) requirements aren't clear
- (iii) Time to deliver the product to market is short

**ANS: only (i)**

**Q)** Consider a mongoDB collection named movie given below: db.movie.insert([

```
{_id:201,MovieName:"Moana",Category:"Animation",IMDBRating:7.6},  
{_id:202,MovieName:"Bridesmaids",Category:"Comedy",IMDBRating:6.8},  
{_id:203,MovieName:"Inside out",Category:"Animation",IMDBRating:8.2},  
{_id:204,MovieName:"The Hangover",Category:"Comedy",IMDBRating:7.7},  
{_id:205,MovieName:"Mission: Impossible",Category:"Action",IMDBRating:7.8}, {_id:206,MovieName:"John Wick",Category:"Action",IMDBRating:7.4},  
{_id:207,MovieName:"We're the Millers",Category:"Comedy",IMDBRating:7},  
]);
```

Sam executed the following statement:

```
db.movie.update({},{$set:{releasedOn:"NA"}}); db.movie.update({_id:201},{releasedOn:2016});
```

```
db.movie.find({$or:[{Category:"Animation"},{IMDBRating:{$lt 7}}]}, {_id:1});
```

**ANS: 3 docs (moana and inside out for Category “Animation” and ‘Bridesmaids’ for rating less than 7) Sql query would be Select id from movie where category='Animation' or rating <7**

**Q)** Consider the following table for candidate and testinformation

Table: candidate

| candidateid | candidatename | mobilenumber | age |
|-------------|---------------|--------------|-----|
| 5001        | Kathy         | 987          | 21  |
| 5002        | Lisa          | 1561         | 22  |
| 5003        | Thomas        | 456          | 21  |

|      |        |        |    |
|------|--------|--------|----|
| 5004 | Warner | 465651 | 23 |
| 5005 | Joseph | 56465  | 22 |
| 5006 | Matt   | 4654   | 22 |

Table:testinformation

| candidateid | testcenter | testdate  |
|-------------|------------|-----------|
| 5001        | Delhi      | 24-jan-16 |
| 5002        | Mumbai     | 15-mar-16 |
| 5003        | Kolkata    | 20-apr-16 |
| 5004        | Delhi      | 24-Jan-16 |
| 5005        | Mumbai     | 17-may-16 |
| 5006        | Banglore   | 31-mar-16 |

Ron and Joey have written the following queries:

Ron's Query:

```
SELECT candidateid FROM candidate WHERE candidatename LIKE '%a%' AND age >21
```

```
UNION ALL
```

```
SELECT candidateid FROM testinformation WHERE testdate > 31-jan-16
```

Joe's Query:

```
SELECT candidateid FROM candidate WHERE candidatename LIKE '%a%' AND age >21 UNION
```

```
SELECT candidateid FROM testinformation WHERE testdate > 31-jan-16
```

How Many Rows Will be fetched:

**ANS: 7, 5 .**

Q) The following transaction logic is executed on above tables: BEGIN UPDATE product SET price = 700 WHERE prodid ='P101'; ROLLBACK; INSERT INTO bill VALUES(.....); //valid insert COMMIT; UPDATE product SET price =800 WHERE prodigy='P103' INSERT INTO bill VALUES(.....)//valid input but useless since no commit END;

How many updates and inserts reflect in the database when the above transaction logic gets executed:

**ANS: 0 update 1 insert**

Q) Consider the table flat with attributes and indexes given below : Flatid is the primary key of the flat table.

Table: flat

| flatid | flattype | flatcost | flatavailable | rating |
|--------|----------|----------|---------------|--------|
| F101   | 1 BHK    | 2500000  | 15            | 2      |
| F102   | 2 BHK    | 3500000  | 10            | 1      |
| F103   | 3BHK     | 4500000  | 5             | 4      |
| F104   | 2 BHK    | 3000000  | 20            | 3      |

IDX1 : flatid

IDX2 : FLATTYPE,RATINGS

IDX3 : FLATCOST,FLATSAVAILABLE

Which of the following queries given below will use index:

**ANS: SELECT flatid FROM flat where flattype = '2BHK' AND rating >= 1;**

**Q)** Consider the create statement for the table customer given below:

```
CREATE TABLE customer( custid INTEGER PRIMARY KEY,
    custname VARCHAR2(25) UNIQUE, custtype
    VARCHAR2(8), regdate DATE DEFAULT '26-JUL-2017'
    gender CHAR(1) CHECK(gender IN('M','F')) );
```

Xavier executed the following SQL statements sequentially on the existing customer table:

```
INSERT INTO customer VALUES(980,' Robert ','Regular','23-sep-18','M');
```

```
INSERT INTO customer(regdate,gender,custtype) VALUES(NULL,'F','Elite');
```

```
INSERT INTO customer(gender,custtype,custid) VALUES('M','Privileged',996);
```

```
INSERT INTO customer VALUES(992,' Susan ','Regular',NULL,'F');
```

```
INSERT INTO customer(custname,gender,custtype,custid) VALUES('William',NULL,'Elite',986); COMMIT;
```

```
SELECT * FROM customer;
```

How many rows will be fetched when the above SELECT query is executed? **ANS: 3**

Consider the following code that depicts **BINARY SEARCH** algorithm for the list of elements sorted in **DESCENDING**

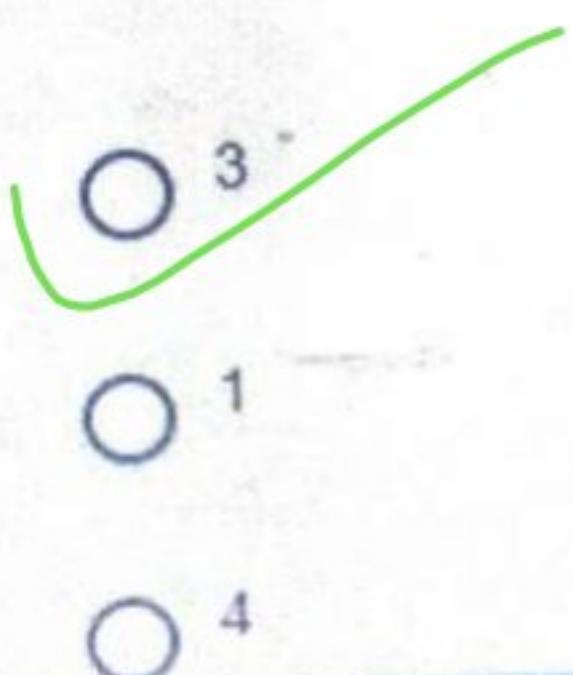
```
public static int search(int arrayOfElements[], int low, int high, int elementToBeSearched){  
    if (low <= high) {  
        int mid = (low + high) / 2;  
        if (arrayOfElements[mid] == elementToBeSearched)  
            return mid;  
        if (arrayOfElements[mid] > elementToBeSearched)  
            return search(arrayOfElements, mid + 1, high, elementToBeSearched);  
        return search(arrayOfElements, low, mid - 1, elementToBeSearched);  
    }  
    return -1;  
}
```



Consider the **arrayOfElements** having 7 elements with **low** as 0 and **high** as 6. The elements of the array are as follows:

18, 12, 10, 5, 4, 3, 1

How many iterations will be required to search if the **elementToBeSearched** is 10?



```
    if (arrayOfElements[mid] > elementToBeSearched)
        return search(arrayOfElements, mid + 1, high, elementToBeSearched);
    return search(arrayOfElements, low, mid - 1, elementToBeSearched);
}
return -1;
}
```

Consider the **arrayOfElements** having 7 elements with **low** as 0 and **high** as 6. The elements of the array are as follows:  
18, 12, 10, 5, 4, 3, 1

How many iterations will be required to search if the **elementToBeSearched** is 10?

- 3
- 1
- 4
- 2

Reset

Save

[1 marks]

Consider the code given below:

```
class AdditionQuiz{  
    int score;  
    int num1;  
    int num2;  
  
    public AdditionQuiz(int num1, int num2){  
        this.score=0;  
        this.num1=num1;  
        this.num2=num2;  
    }  
  
    public String evaluateQuiz(int answer){  
        if((this.num1+this.num2)==answer){  
            this.score+=1;  
            return "Good job";  
        }  
        return "Try again";  
    }  
}  
class MultiplicationQuiz extends AdditionQuiz {
```

```
}

class MultiplicationQuiz extends AdditionQuiz {
    MultiplicationQuiz(int num1,int num2){
        super(num1,num2);
    }
    @Override
    public String evaluateQuiz(int answer){
        if((this.num1*this.num2)==answer){
            this.score+=2;
            return "Well done";
        }
        return "Can do better";
    }
    public static void main(String[] args){
        AdditionQuiz quiz1=new AdditionQuiz(2,3); //Line 1
        System.out.println(quiz1.evaluateQuiz(5));// Line 2
    }
}
```

Which of the following modifications can be done on Line 1 so that Line 2 will call the overridden method?

**Note:** Line numbers are for reference only

Which of the following modifications can be done on Line 1 so that Line 2 will call the overridden method in class AdditionQuiz?

**Note:** Line numbers are for reference only

- a. `AdditionQuiz quiz1=new MultiplicationQuiz(2,3);`
- b. `MultiplicationQuiz quiz1=new MultiplicationQuiz(2,3);`
- c. `MultiplicationQuiz quiz1=new AdditionQuiz(2,3);`

Only b

Only a and b

Only b and c

All a, b and c

### Question 3

[2 marks]

What is the output of the following code snippet?

```
class Patient{  
    private int patientId;  
    public Patient(int patientId){  
        this.patientId=patientId;  
    }  
    public int identifyAmt(double[] amountArr, int[] patientIdArr){  
        double amt=0.0;  
        int counter=0;  
        for(int index=0;index<patientIdArr.length;index++){  
            if(patientIdArr[index]==this.patientId){  
                amt=amountArr[index];  
                break;  
            }  
        }  
        for(int index=0;index<patientIdArr.length;index++){  
            if(amountArr[index]>amt){  
                counter++;  
            }  
        }  
        return counter;  
    }  
}
```

```
}
```

```
class Demo{
```

```
    public static void main(String [] args){
```

```
        double[] amountArr = {12,13,16,16,19,20,10,9};
```

```
        int[] patientIdArr={1002,1004,1001,1003,1005,1009,1011,1008};
```

```
        Patient patientObj=new Patient(1001);
```

```
        System.out.println(patientObj.identifyAmt(amountArr, patientIdArr));
```

```
}
```

```
}
```



- 2
- 3

- Runtime Error: Array index out of bounds
- Compilation Error: Unreachable code

Reset

Save

i.  $n!$

ii.  $n^n$

iii.  $n^3$

Only i and ii

Only i and iii

Only ii

Only ii and iii

## Question 5

[2 marks]

What is the output of the code given below?

```
class DailyWager {  
    public String wagerName;  
    public String wagerAddress;  
  
    public DailyWager() {  
        this();  
        System.out.println("Parameterless constructor called");  
    }  
  
    public DailyWager(String wagerName, String wagerAddress) {  
        this.wagerName = wagerName;  
        this.wagerAddress = wagerAddress;  
    }  
  
    public void displayWagerName() {  
        System.out.println("Wager Name: " + this.wagerName );  
    }  
}
```

```
public void displayDetails() {  
    this.displayWagerName();  
    System.out.println("Address: " + this.wagerAddress );  
}  
}  
  
public class Demo {  
  
    public static void main(String[] args) {  
        DailyWager wager1 = new DailyWager("Hales","Canada");  
        wager1.displayDetails();  
    }  
}
```

Wager Name: Hales

Address: Canada

Parameterless constructor called

Wager Name: Hales

 Wager Name: Hales

Address: Canada

Parameterless constructor called

Wager Name: Hales

Address: Canada

Wager Name: null

Address: null

Compilation Error: Recursive constructor invocation

## Question 6

[3 marks]

What is the output of the code given below?

```
public class Demo{  
    public static int count(int chocolate,int wrap) {  
        if (chocolate < wrap)  
            return 0;  
        int newChocolates = chocolate / wrap;  
        return newChocolates + count(newChocolates + chocolate % wrap, wrap);  
    }  
  
    public static int findMaxChocolates(int money,int price,int wrap){  
        int chocolate = (money / price);  
        return chocolate + count(chocolate, wrap);  
    }  
  
    public static void main(String[] args){  
        int money = 45;  
        int price = 5;  
        int wrap = 3;  
        System.out.println(findMaxChocolates(money, price, wrap));  
    }  
}
```

```
}
```

```
public static void main(String[] args){  
    int money = 45;  
    int price = 5;  
    int wrap = 3;  
    System.out.println(findMaxChocolates(money, price, wrap));  
}
```

```
}
```

14

13

9

15



## **Question 7**

**[2 marks]**

**What is the output of the code given below?**

```
class Student{  
    protected int rollNo;  
    protected String studentName;  
    public Student(){  
        this.rollNo=1001;  
        this.studentName="Roger";  
    }  
    public Student(int rollNo, String studentName){  
        this.rollNo=rollNo;  
        this.studentName=studentName;  
    }  
    protected void display(){  
        System.out.println(this.rollNo+" "+this.studentName);  
    }  
}  
class Hostelite extends Student{  
    private int hostelId;  
    private String blockName;  
    public Hostelite(int hostelId, String blockName){  
        this.hostelId=hostelId;  
    }  
}
```

```
class Hostelite extends Student{  
    private int hostelId;  
    private String blockName;  
    public Hostelite(int hostelId, String blockName){  
        this.hostelId=hostelId;  
        this.blockName=blockName;  
    }  
    public void display(){  
        super.display();  
        System.out.println(this.hostelId+" "+this.blockName);  
    }  
    public static void main(String args[]){  
        Hostelite ben = new Hostelite(2001, "Arthur");  
        ben.display();  
    }  
}
```

Compilation Error: The constructor of Student class is not invoked

1001 Roger  
 2001 Arthur

0 null  
 2001 Arthur

```
}

public static void main(String args[]){
    Hostelite ben = new Hostelite(2001,"Arthur");
    ben.display();
}

}
```

- Compilation Error: The constructor of Student class is not invoked

- 1001 Roger
- 2001 Arthur

- 0 null
- 2001 Arthur

- 2001 Arthur
- 1001 Roger

Reset

Save

## Question 8

[1 marks]

Consider the line given below which results in compilation error.

byte num=200;



How can the compilation error be resolved?

Choose THREE CORRECT statements from the below options.

- Change the datatype from byte to int
- Change the value from 200 to any positive value less than 128
- Type cast the value 200 to byte
- Replace 200 with 200.0

[2 marks]

Consider the **inIntLinkedList** given below:

**inIntLinkedList** (Head to Tail): 2 -> 8 -> 3 -> 5 -> 11

Consider the **calculateTotal** function given below:

```
public void calculateTotal(Node head){  
    int total=0;  
    Node temp;  
    if(head==null){  
        return;  
    }  
    temp=head;  
    while(temp!=null & temp.getNext()!=null){  
        if(temp.getData()<=temp.getNext().getData()){  
            total+=temp.getNext().getData();  
        }  
        else{  
            total+=temp.getData();  
        }  
        temp=temp.getNext();  
    }  
    temp.setData(total);  
}
```

What will be the content of **inIntLinkedList** from Head to Tail after the execution of the above function with input parameter?

```
    temp.setData(total);
```

```
}
```

What will be the content of **inIntLinkedList** from Head to Tail after the execution of the above function when the **head node** of **inIntLinkedList** is passed as a

**Assumption:** LinkedList class, with the necessary methods, is available



- 2 -> 8 -> 3 ->5 -> 11 -> 32
- 32 -> 8 -> 3 ->5 -> 11
- 2 -> 8 -> 3 ->5 -> 32
- 2 -> 8 -> 3 ->5 -> 11 -> 26

**[2 marks]**

**What is the output of the code given below?**

```
abstract class AbstractClass {  
    private String str1;  
    String value1;
```



```
    AbstractClass(String label, int num) {  
        str1 = ""+num;  
        value1 = label;  
    }
```

```
    String getLabel() {  
        return str1;  
    }
```

```
    abstract String getNumber();  
}
```

```
class ConcreteClass extends AbstractClass {  
    ConcreteClass(String label, int num) {
```

```
class ConcreteClass extends AbstractClass {
```

```
    ConcreteClass(String label, int num) {  
        super(label, num);  
    }
```

```
    String getNumber() {  
        return value1;  
    }  
}
```

```
class Tester {  
    public static void main(String args[]) {  
        ConcreteClass obj = new ConcreteClass("AJ", 1);  
        System.out.println( obj.getNumber() );  
        System.out.println( obj.getLabel() );  
    }  
}
```

1

O AJ

```
System.out.println( obj.getNumber() );
System.out.println( obj.getLabel() );
}
}
```

1

AJ



AJ

1

Compile Error: getNumber() doesn't have implementation in Abstract class

Compile Error: cannot convert from int to String

Reset

Save

**[1 marks]**

**Consider the following statements:**

```
int val1 = 25;  
Float val2 = new Float(12.50);  
boolean value3 = true;  
Boolean value4= false;
```

**Identify the number of object(s) of wrapper type.**



2

1

3

0

## Question 12

[1 marks]

What should be replaced at Line1 to obtain output as below:

G002 is available for use

false, true

**Note:** Line numbers are for reference only.

```
class ClassRoom {  
    public String classRoomNo;  
    private boolean available;  
    public ClassRoom(String classRoomNo){  
        this.classRoomNo=classRoomNo;  
        this.available=true;  
    }  
    public boolean getAvailable(){  
        return this.available;  
    }
```

```
public boolean getAvailable(){
    return this.available;
}

public void setAvailable(boolean available){
    this.available=available;
}

class Educator {
    public void checkClassRoomAvailability(ClassRoom classRoom) {
        if(classRoom.getAvailable()) {
            System.out.println(classRoom.classRoomNo+" is available for use");
            classRoom.setAvailable(false);
        }
        else {
            System.out.println(classRoom.classRoomNo+" is unavailable");
        }
    }
}
```

```
        System.out.println(classRoom.classRoomNo+" is unavailable");
    }
}

class Tester { 
    public static void main(String[] args) {
        ClassRoom classRoomRef1=new ClassRoom("G002");
        ClassRoom classRoomRef2=new ClassRoom("L1002");
        new Educator().checkClassRoomAvailability(classRoomRef1);
        System.out.println(______); //Line1
    }
}

classRoomRef1.getAvailable()+" "+classRoomRef2.getAvailable()
```

```
System.out.println( ); //Line1
```

```
}
```

```
}
```



- classRoomRef1.getAvailable()+"+"+classRoomRef2.getAvailable()
- classRoomRef1.getAvailable()+"+"+classRoomRef1.getAvailable()
- classRoomRef2.getAvailable()+"+"+classRoomRef1.getAvailable()
- classRoomRef2.getAvailable()+"+"+classRoomRef2.getAvailable()

Reset

Save

**QUESTION 13**

[1 marks]

Consider the code given below:

```
class Customer {  
    private int custId;  
    private String custName;  
    public Customer(int custId) {  
        this.custId = custId;  
    }  
    public void ValidateCustomerId() {  
        if(this.custId>9999) {  
            System.out.println("Invalid customer id");  
        }  
        else{  
            System.out.println("Valid customer id");  
        }  
    }  
}
```

Which of the following programming flaws can be identified by the PMD tool?

```
        System.out.println("Valid customer id");
    }
}
}
```

Which of the following programming flaws can be identified by the PMD tool?

- Unused variable 'custName'
- Invalid method naming convention
- Use of System.out.println()
- All the given options

Reset

Save

**[1 marks]**

**Which of the following statements is FALSE?**

- final instance variables can be initialized in the constructor of the class 
- There is no need to import classes which are present in the same package
- A parent reference cannot hold a child object
- ClassA in package1 can call method1 defined in a public ClassB present in package2 only if ClassA imports ClassB

## Question 15

[3 marks]

Consider an ArrayDeque **inArrayDeque** and a Queue **inQueue** containing the following elements:  
**inArrayDeque(front->rear):** [1, 2, 3, 4, 5]  
**inQueue(front->rear):** ["Apple", "Bat", "Cotton", "Desert", "English"]

What will be the content of the **outStack**(top-> bottom) if **inArrayDeque** and **inQueue** are passed as parameters?

```
public Stack convertToStack(ArrayDeque<Integer> inArrayDeque, Queue inQueue){  
    List<Integer> interList = new ArrayList<>();  
    Stack outStack = new Stack(5);    →  
    do {  
        interList.add(inArrayDeque.remove() + inArrayDeque.size());  
    } while(inArrayDeque.poll() != null);  
  
    for(int num : interList){  
        if(!inQueue.isEmpty()){  
            String str = inQueue.dequeue();  
            outStack.push(num + str.length());  
        }  
        else{  
            outStack.push(num);  
        }  
    }  
}
```

**Note:** 'Stack' and 'Queue' refer to the user defined classes discussed as a part of the course

**Assumption:** Queue and Stack classes, with all its methods having necessary datatypes, are available.

- outStack(top->bottom):[11, 8, 10]
- Exception thrown: java.util.NoSuchElementException
- outStack(top->bottom):[10, 8, 11]
- outStack(top->bottom):[7, 8, 14]

## Question 16

[1 marks]

Consider the below code:

```
class ExceptionExample {  
    public void checkForExceptions(int num1,int num2){  
        int intArr[]={1,2,3};  
        String str="Hello";  
        try{  
            str.charAt(0);  
            System.out.println(num1/num2);  
            System.out.println("Eloy no exception!");  
        }  
        //Line1  
    }  
}  
class Tester{  
    public static void main(String[] args){  
        ExceptionExample exceptionExample=new ExceptionExample();  
        exceptionExample.checkForExceptions(2,0);  
    }  
}
```

Choose TWO CORRECT catch block(s) from the below options which will replace Line1 to handle the exception.

```
}
```

Choose TWO CORRECT catch block(s) from the below options which will replace Line1 to handle the exception that occurs in Line1.

**Note:** Line numbers are for reference only.

catch(ArithmeticException e){  
 System.out.println("ArithmeticException handler!");  
}

catch(NullPointerException e){  
 System.out.println("NullPointerException handler!");  
}

catch(ArrayIndexOutOfBoundsException e) {  
 System.out.println("ArrayIndexOutOfBoundsException handler!");  
}

catch(Exception e){  
 System.out.println("Default exception handler!");  
}

catch(ArithmeticException e){  
 System.out.println("ArithmeticException handler!");  
}

catch(NullPointerException e){  
 System.out.println("NullPointerException handler!");  
}

catch(ArrayIndexOutOfBoundsException e){  
 System.out.println("ArrayIndexOutOfBoundsException handler!");  
}

catch(Exception e){  
 System.out.println("Default exception handler!");  
}

### QUESTION 17

[2 marks]

Consider the following ArrayList **inArrayList** consisting of integers:

**inArrayList**: [10, 20, 30, 40, 50, 60, 70, 80]

What will be the content of **outList** if **inArrayList** is passed as a parameter to the below method?

```
public static ArrayList<Integer> getModifiedList(ArrayList<Integer> inArrayList){  
    ArrayList<Integer> outList = new ArrayList<>();  
    ArrayList<Integer> tempList = new ArrayList<>();  
    for(int index=0;index<inArrayList.size();index++){  
        if (inArrayList.get(index)%(index+1)==0){  
            int temp = inArrayList.remove(index);  
            tempList.add(temp);  
        }  
    }  
    ListIterator<Integer> iter = tempList.listIterator();  
    while(iter.hasNext()){  
        outList.add(iter.next());  
        if(iter.nextIndex()%3==0){  
            iter.remove();  
        }  
        iter.next();  
    }  
}
```

```
    }
    outList.addAll(tempList);
    return outList;
}
```



- outList: [10, 30, 60, 80]
- outList: [10, 60]
- outList: [10, 60, 10, 30, 80]
- Runtime Exception: ConcurrentModificationException

Reset

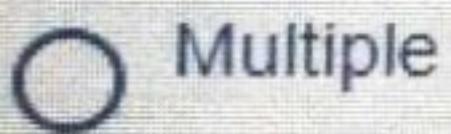
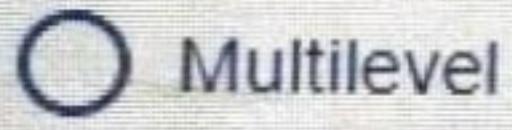
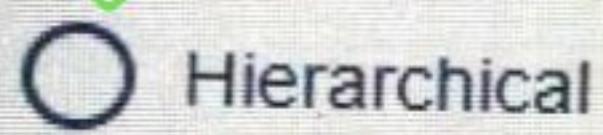
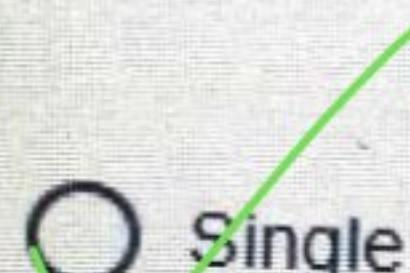
Save

[1 marks]

Lucas a novice programmer wrote the below code . Identify the type of Inheritance implemented by Lucas?

```
1 class Furniture{  
2     Furniture(){  
3         System.out.println("Constructor definition");  
4     }  
5 }  
6 class Table extends Furniture{  
7     Table(){  
8         System.out.println("Table is a Furniture");  
9     }  
10 }  
11 class Chair {  
12     Chair(){  
13         System.out.println("Chair is a Furniture");  
14     }  
15 }  
16 public class Tester{  
17     public static void main(String[] args) {  
18         Table table=new Table();  
19     }  
20 }
```

```
14 }     System.out.println("Chair is a Furniture");
15 }
16 public class Tester{
17     public static void main(String[] args) {
18         Table table=new Table();
19     }
20 }
```



[1 marks]

GetWellSoon hospital wants to keep track of its patients' blood report details. Each patient is assigned with a unique ID when they register the hospital. A patient may consult the hospital multiple times however the registration needs to be done only once. The blood report details must be associated with the ID and only the latest blood report needs to be stored.

Considering the scenario mentioned, identify the most suitable data structure for storing the blood report details.

- HashMap
- HashSet
- LinkedList
- ArrayDeque

**Problem Statement:** Given a weighing machine and a bag of even numbered coins, identify the counterfeit coin. Bag contains ONLY one counterfeit coin. Counterfeit coins are ones which are lighter when compared to other coins.

**Proposed Solution:** Place half the coins on one side of the weighing machine and the rest of the coins on the other side. The side with the counterfeit coin will be lighter. Take only the coins on the lighter side and repeat the operation until the counterfeit coin is identified.  
Identify the algorithmic design technique used in the proposed solution given above.

- Greedy Technique
- Dynamic Programming
- Divide and Conquer
- Brute Force Technique

**[1 marks]**

Which of the following tools is required to compile the Java programs?

- JDK
- JVM
- JRE
- Interpreter

## Question 22

[1 marks]

Consider the code given below:

```
class Customer {  
    private int custId;  
    private String custName;  
    Customer(int custId, String custName) {  
        this.custId = custId;  
        this.custName = custName;  
    }  
    //setters and getters are defined accordingly  
}  
  
class RegularCustomer {  
    private int custId;  
    private String custName;  
    private float discount;  
    RegularCustomer(int custId, String custName, float discount) {  
        this.custId = custId;  
        this.custName = custName;  
        this.discount = discount;  
    }  
    //setters and getters are defined accordingly  
}
```

QUESTION

```
RegularCustomer(int custId, String custName, float discount) {  
    this.custId = custId;  
    this.custName = custName;  
    this.discount = discount;  
}  
//setters and getters are defined accordingly  
}
```

Identify the OOP principle(s) that has/have been implemented in the above code.

- Only Encapsulation
- Both Encapsulation and Inheritance
- Only Polymorphism
- Only Inheritance

## Question 23

[1 marks]

Consider the following stack of integers **inStack** with capacity 5.

**inStack**(top->bottom): 4, 6, 3, 2, 5

What will be the contents of **inStack** when following operations are done?

**inStack.pop();**



**inStack.pop();**

**instack.push(7);**

**inStack.pop();**

**inStack**(top->bottom): 2, 5, 7

**inStack**(top->bottom): 7, 3, 2, 5

What will be the contents of **inStack** when following operations are done?

**inStack.pop();**

**inStack.pop();**

**instack.push(7);**

**inStack.pop();**

**inStack**(top->bottom): 2, 5, 7

**inStack**(top->bottom): 7, 3, 2, 5



**inStack**(top->bottom): 7, 2, 5

**inStack**(top->bottom): 3, 2, 5



## Question 24

[2 marks]

Consider a queue of integers **inQueue** and a stack of integers **inStack** both implemented using the inbuilt **ArrayDeque** class. The **inQueue** contains the following elements:

**inQueue**(front -> rear) : [2, 14, 3]

**inStack** (top -> bottom): [2, 2, 7, 5]

What will be the content of **outStack**(top -> bottom) if **inQueue** and **inStack** are passed as input parameters to the following function?

```
public static ArrayDeque<Integer> findNumbers(ArrayDeque<Integer> inQueue, ArrayDeque<Integer> inStack){  
    ArrayDeque<Integer> outStack= new ArrayDeque<Integer>();  
    for(Integer num:inQueue){  
        Integer sum=0;  
        while (inStack.peek()!=null){  
            sum+=inStack.pop();  
            if (sum==num){  
                outStack.push(num);  
                break;  
            }  
        }  
        if (sum<num){  
            outStack.pop();  
        }  
    }  
    return outStack;  
}
```

```
    }
    if (sum<num){
        outStack.pop();
    }
    return outStack;
}
```

**outStack**(top ->bottom): [14, 2]

**outStack**(top ->bottom): [2]

**outStack**(top ->bottom): [2, 14] 

**outStack**(top ->bottom): [14]

Reset

Save

## Question 25

[1 marks]

Choose TWO CORRECT codes from the below options which can be written at Line1 of the below code to get the output.

```
class Demo{  
    public static void main(String[] args) {  
        String mob="1234512345";  
        //Line1  
        if(mob.matches(re)){  
            System.out.println("valid");  
        }  
        else{  
            System.out.println("invalid");  
        }  
    }  
}
```

**Note:** Line numbers are for reference only.

- String re="\d{10}";
- String re="[0-9]{10}";

```
  "(mob.matches(re)){\n      System.out.println("valid");\n  }\n  else{\n      System.out.println("invalid");\n  }\n}
```

**Note:** Line numbers are for reference only.

String re="\d{10}";



String re="[0-9]{10}";

String re="\d{10}";

String re="\D{10}";

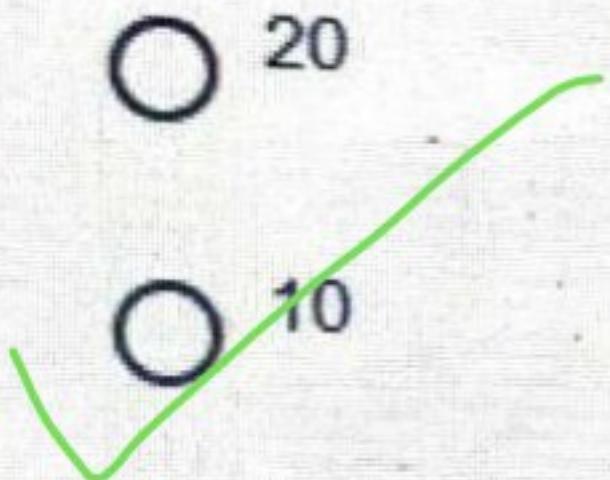
## Question 26

[2 marks]

What is the output of the code given below?

```
class Demo{  
    public static void main(String[] args) {  
        int num1 = 1;  
        int num2 = 1;  
        int sum=0;  
        int outputNum=0;  
        for(;num1<10;num1 = num1+2){  
            sum+=num1;  
            for(;num2<5;num2++){  
                sum-=num2;  
            }  
        }  
        switch(sum) {  
            case 15: outputNum=15;  
            case 30: outputNum = 10;  
                break;  
            case 35: outputNum = 20;  
                break;  
            default: outputNum = -1;  
        }  
    }  
}
```

```
        case 10:  
            break;  
        case 35: outputNum = 20;  
            break;  
        default: outputNum = -1;  
    }  
    System.out.println(outputNum);  
}  
}
```

- 20
  - 10
  - 1
  - 15
- 
- 

## Question 27

[2 marks]

What is the output of the code given below?

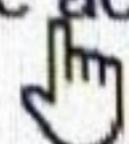
```
class Student{  
    private int studentId;  
    private int yearOfEnrollment;  
    private static int counter1=2014101;  
    private static int counter2=101;  
    public Student( int yearOfEnrollment){  
        this.yearOfEnrollment=yearOfEnrollment;  
        if(this.yearOfEnrollment==2014){  
            this.studentId=Student.counter1++;  
        }  
        else{  
            this.studentId=Student.counter2++;  
        }  
    }  
    public static int totalNumberOfStudents(){  
        return (Student.counter2-101);  
    }  
    public static int totalNumberOfStudents(int year){  
        return (Student.counter1 - 2014100);  
    }  
}
```

### Public Class Demo{

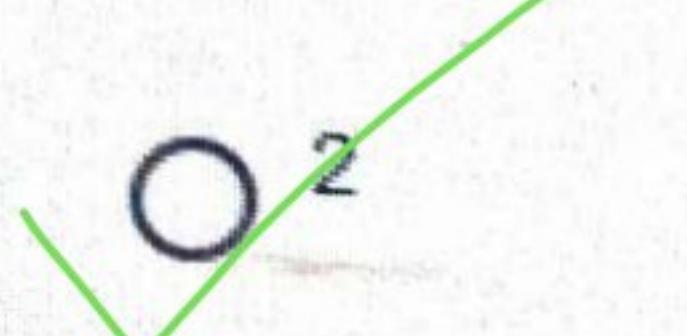
```
public static void main(String[] args){  
    Student studentObj1 = new Student(2014);  
    System.out.println(Student.totalNumberOfStudents(2014));  
}
```

}

- Compilation Error: Static variables cannot be accessed inside constructor



- 0



- 2

- 1