Question 1

Correct

Mark 1.00 out of 1.00

When in order traversing a tree resulted E A C K F H D B G;

the preorder traversal would return:

Select one:

- a. FAEKCDBHG
- b. FAEKCDHGB ✓
- c. EAFKHDCBG
- d. FEAKDCHBG

Your answer is correct.

The correct answer is: FAEKCDHGB

Question 2

Correct

Mark 1.00 out of 1.00

What is common in three different types of traversals (Inorder, Preorder and Postorder)?

Select one or more:

- a. Root is visited before right subtree
- b. Left subtree is always visited before right subtree ✓

Explanation:

The order of inorder traversal is
LEFT ROOT RIGHT
The order of preorder traversal is
ROOT LEFT RIGHT
The order of postorder traversal is
LEFT RIGHT ROOT
In all three traversals, LEFT is traversed before RIGHT

- c. Root is visited after left subtree
- d. All of the above
- e. None of the above

Your answer is correct.

The correct answer is: Left subtree is always visited before right subtree

Question 3

Correct

Mark 1.00 out of 1.00

The following numbers are inserted into an empty binary search tree in the given order: 10, 1, 3, 5, 15, 12, 16. What is the height of the binary search tree (the height is the maximum distance of a leaf node from the root)?

Select one or more:

- a. 2
- b. 3 ✓
- c. 4
- d. 6

Your answer is correct.

The correct answer is: 3

Question 4

Correct

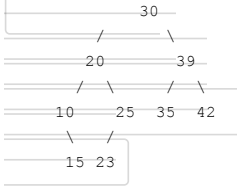
Mark 1.00 out of 1.00

The preorder traversal sequence of a binary search tree is 30, 20, 10, 15, 25, 23, 39, 35, 42. Which one of the following is the postorder traversal sequence of the same tree?

Select one or more:

- [ ] a. 10, 20, 15, 23, 25, 35, 42, 39, 30
- [ ] b. 15, 10, 25, 23, 20, 42, 35, 39, 30
- [ ] c. 15, 20, 10, 23, 25, 42, 35, 39, 30
- [x] d. 15, 10, 23, 25, 20, 35, 42, 39, 30

Explanation: The following is the constructed tree



Your answer is correct.

The correct answer is: 15, 10, 23, 25, 20, 35, 42, 39, 30

Question 5

Correct

Mark 1.00 out of 1.00

Suppose the numbers 7, 5, 1, 8, 3, 6, 0, 9, 4, 2 are inserted in that order into an initially empty binary search tree. The binary search tree uses the usual ordering on natural numbers. What is the in-order traversal sequence of the resultant tree?

Select one or more:

- [ ] a. 7 5 1 0 3 2 4 6 8 9
- [ ] b. 0 2 4 3 1 6 5 9 8 7
- [x] c. 0 1 2 3 4 5 6 7 8 9

Explanation: In-order traversal of a BST gives elements in increasing order. So answer c is correct without any doubt.

- [ ] d. 9 8 6 4 2 3 0 1 5 7

Your answer is correct.

The correct answer is: 0 1 2 3 4 5 6 7 8 9

Question **6**

Correct

Mark 1.00 out of 1.00

Database table by name Loan_Records is given below.

```
Borrower    Bank_Manager   Loan_Amount
 Ramesh      Sunderajan     10000.00
 Suresh      Ramgopal       5000.00
 Mahesh      Sunderajan     7000.00
```

What is the output of the following SQL query?

```
SELECT Count(*)
FROM  ( ( SELECT Borrower, Bank_Manager
          FROM Loan_Records) AS S
          NATURAL JOIN ( SELECT Bank_Manager, Loan_Amount
                         FROM Loan_Records) AS T );
```

Select one or more:

- [ ] a. 6
- [ ] b. 3
- [x] c. 5

Following will be contents of temporary table S

```
 Borrower     Bank_Manager
-------------------------
 Ramesh       Sunderajan
 Suresh       Ramgqpal
 Mahesh       Sunderajan
```

Following will be contents of temporary table T

```
 Bank_Manager    Loan_Amount
----------------------------
Sunderajan       10000.00
Ramgopal         5000.00
Sunderajan       7000.00
```

Following will be the result of natural join of above two tables. The key thing to note is that the natural join happens on column name with same name which is Bank_Manager in the above example. “Sunderajan” appears two times in Bank_Manager column, so their will be four entries with Bank_Manager as “Sunderajan”.

```
 Borrower  Bank_Manager    Load_Amount
-------------------------------------
Ramesh     Sunderajan      10000.00
Ramesh     Sunderajan      7000.00
Suresh     Ramgopal        5000.00
Mahesh     Sunderajan      10000.00
Mahesh     Sunderajan      7000.00
```

- [ ] d. 9

Your answer is correct.

The correct answer is: 5

Question 7

Correct

Mark 1.00 out of 1.00

A relational schema for a train reservation database is given below. Passenger (pid, pname, age) Reservation (pid, class, tid)

Table: Passenger

pid	pname	age
0	Sachin	65
1	Rahul	66
2	Sourav	67
3	Anil	69

Table : Reservation

pid	class	tid
0	AC	8200
1	AC	8201
2	SC	8201
5	AC	8203
1	SC	8204
3	AC	8202

What pids are returned by the following SQL query for the above instance of the tables?

```
SELECT pid FROM Reservation
WHERE class='AC' AND
EXISTS (SELECT * FROM Passenger WHERE age>65 AND Passenger.pid=Reservation.pid)
```

Select one or more:

- [x] a. 1,3

When a subquery uses values from outer query, the subquery is called correlated subquery. The correlated subquery is evaluated once for each row processed by the outer query. The outer query selects 4 entries (with pids as 0, 1, 5, 3) from Reservation table. Out of these selected entries, the subquery returns Non-Null values only for 1 and 3.

- [ ] b. 1,2
- [ ] c. 1,0
- [ ] d. 1,5

Your answer is correct.

The correct answer is: 1,3

Question 8

Correct

Mark 1.00 out of 1.00

What is the min and max number of tables required to convert an ER diagram with 2 entities and 1 relationship between them with partial participation constraints of both entities?

Select one or more:

- [ ] a. Min 1 Max 2
- [x] b. Min 2 Max 3

Maximum number of tables required is 3 in case of many to many relationships between entities. Minimum number of tables is 1 in case of unary relationship and total participation of atleast one entity. But in case of partial participation of both entities, minimum number of tables required is 2.

- [ ] c. Min 2 Max 3
- [ ] d. Min 1 and Max 3

Your answer is correct.

The correct answer is: Min 2 Max 3

Question 9

Correct

Mark 1.00 out of 1.00

Match the following with respect to RDBMS :

(a)	Entity integrity	(i)	enforces some specific business rule that do not fall into entity or domain
(b)	Domain integrity	(ii)	Rows can't be deleted which are used by other records
(c)	Referential integrity	(iii)	enforces valid entries for a column
(d)	Userdefined integrity	(iv)	No duplicate rows in a table

Code :

	(a)	(b)	(c)	(d)
(1)	(iii)	(iv)	(i)	(ii)
(2)	(iv)	(iii)	(ii)	(i)
(3)	(iv)	(ii)	(iii)	(i)
(4)	(ii)	(iii)	(iv)	(i)

Select one or more:

- a. 4
- b. 3
- c. 2 ✓

Codd's rule says that entity integrity must be maintained so that no duplicate record exist in DB. In RDBMS table column entry must be valid, It also comes under codd's rule. Referential data items strictly follows integrity on insertion, deletion and modification of table and user defined integrity constraints enlist some specific business rule, these rule don't fall into entity or domain. So, option (B) is correct.

- d. 1

Your answer is correct.

The correct answer is: 2

Question 10

Correct

Mark 1.00 out of 1.00

Consider the join of a relation R , with a relation S . If R has m number of tuples and S has n number of tuples then the maximum and minimum sizes of the join respectively are:

Select one or more:

- a. m+n & |m-n|
- b. mn & 0 ✓

Consider the folloewing examples: Case 1: Maximum tuples- When the common attribute contain identical values

Relation R		Relation S		R ⋈ S		
a	b	a	d	a	b	d
1	2	1	10	1	2	10
1	3	1	11	1	2	11
1	4			1	3	10
				1	3	11
				1	4	10
				1	4	11

Case 2 : Minimum Tuples- When Both the relations have a common attribute but no tuple in both relations match.

Relation R		Relation S		R ⋈ S		
a	b	a	d	a	b	d
1	2	2	10	No tuple		
1	3	3	11			
1	4					

So, mn & 0 is correct.

- c. m+n and 0
- d. mn & m+n

Your answer is correct.

The correct answer is: mn & 0

Question **11**

Correct

Mark 1.00 out of 1.00

What will be the output of the following progran given below?

```
class MySuper
{
   int data;
   MySuper()
   {
      data = 200;
         }
}
class MySub extends MySuper
{
   int link;
   MySub()
   {
      link = 0;
   }
}
class sub extends Mysub
{
   Sub()
   {
      ShowDATA();
         }
   void showDATA()
         {
      System.out.println (data +" "+ link);
         }
}
class TestDEMO
{
   public static void main (String ARGS[])
         {
      Sub Obj = new Sub();
   }
}
```

Select one or more:

- a. 0 0
- b. 200 200
- c. 200 0 ✓
- d. 0 200

Your answer is correct.

The correct answer is: 200 0

Question 12

Correct

Mark 1.00 out of 1.00

What is the output of the following code?

```
1: class Mammal {
2: public Mammal(int age) {
3: System.out.print("Mammal");
4: }
5: }
6: public class Platypus extends Mammal {
7: public Platypus() {
8: System.out.print("Platypus");
9: }
10: public static void main(String[] args) {
11: new Mammal(5);
12: }
13: }
```

Select one or more:

- [ ] a. Platypus
- [ ] b. PlatypusMammal
- [ ] c. Mammal
- [ ] d. MammalPlatypus
- [x] e. The code will not compile because of line 8. ✓

The code will not compile because the parent class Mammal doesn't define a no-argument constructor, so the first line of a Platypus constructor should be an explicit call to super(int age). If there was such a call, then the output would be MammalPlatypus, since the super constructor is executed before the child constructor.

- [ ] f. The code will not compile because of line 11.

Your answer is correct.

The correct answer is: The code will not compile because of line 8.

Question 13

Correct

Mark 1.00 out of 1.00

Which of the following may only be hidden and not overridden? (Choose all that apply)

Select one or more:

- [x] a. private instance methods ✓
- [ ] b. protected instance methods
- [ ] c. public instance methods
- [x] d. static methods ✓
- [x] e. public variables ✓
- [x] f. private variables ✓

First off, options B and C are incorrect because protected and public methods may be overridden, not hidden. Option A is correct because private methods are always hidden in a subclass. Option D is also correct because static methods cannot be overridden, only hidden. Options E and

Your answer is correct.

The correct answer is: private instance methods, static methods, public variables, private variables

Question 14

Correct

Mark 1.00 out of 1.00

What will be the output of the program given below?

```
class A1
{
   A1 ()
        {
      fun();
   }
   public void fun ()
        {
      System.out.print ("A1");
   }
}
class A2 extends A1
{
   A2()
        {
      fun();
   }
   public void fun ()
        {
      System.out.print ("A2");
   }
}
class A3 extends A2
{
   A3()
        {
      fun();
   }
   public void fun ()
   {
      System.out.print ("A3");
   }
}
class Test
{
   public static void main (String args[])
   {
      A2 A = new A2();
   }
}
```

Select one or more:

- [ ] a. A3 A2 A2
- [ ] b. A3 A2 A1
- [ ] c. A1 A2 A3
- [x] d. A2 A2

Your answer is correct.

The correct answer is: A2 A2

Question **15**

Correct

Mark 1.00 out of 1.00

What is the output of the following code?

```
1: class Arthropod
2: public void printName(double input) { System.out
.print("Arthropod"); }
3: }
4: public class Spider extends Arthropod {
5: public void printName(int input) { System.out.print("Spider"); }
6: public static void main(String[] args) {
7: Spider spider = new Spider();
8: spider.printName(4);
9: spider.printName(9.0);
10: }
11: }
```

Select one or more:

- [ ] a. The code will not compile because of line 5.
- [x] b. SpiderArthropod

The code compiles and runs without issue, so options E and F are incorrect. The printName() method is an overload in Spider, not an override, so both methods may be called. The call on line 8 references the version that takes an int as input defined in the Spider class, and the call on line 9 references the version in the Arthropod class that takes a double. Therefore, SpiderArthropod is output and option A is the correct answer.

- [ ] c. ArthropodSpider
- [ ] d. The code will not compile because of line 9.
- [ ] e. ArthropodArthropod
- [ ] f. SpiderSpider

Your answer is correct.

The correct answer is: SpiderArthropod