CODE DISTRICT MCQ ONLINE TEST

Q1. You have the following code:

```
let b = 10;
function foo(a) {
 a = 5; print(a); print(',');
}
foo(b)
print(b);
```

What will be printed if 'b' is passed by reference vs 'b' is passed by value?

Answer: passed by value:5,10 passed by reference: 5,5

Q2. Answer the following question:

```
 Class Animal {
run()
 }
 Class Cow extends Animal {
 run()
 }
 Class Lion extends Animal {
 run()
}
Animal a = new Lion();
 a.run()
```

Which class function will will get called in the above code incase of dynamic binding vs static binding?

Answer: Static Binding: Dynamic() Dynamic Binding: Lion()

Q3. Now assume I have another class

```
 Class Sheep extends Animal {
```

run()

}

Now I have an array that has Lion, Cow, and Sheep class objects.

Array <???> arr = [L1,C1,L2,C2,R1]

What should be the type of the array?

Answer: Animal

Q4. Consider the following classes:

class Loin() {

}

class JetFighter() {

}

class Soldier() {

}

I want to add an attack() method in all of these classes. What do you think is the best approach of adding this method?

Answer: Create an abstract parent class called "Attacker", implement attack() method there, and override in each class

Q5. We have an Employee entity and a Department entity where an employee can only belong to one department at a time. What should be the relationship between the Department and Employee entities?

Answer: One-to-Many

Q6. How will we establish the Employee and Department relationship in the database?

Answer: Add Department table ID as a foreign key in the Employee table

Q7. We have a Student table and a Course table. One student has many courses and one Course has many students

Student Course

ID ID

Name Name

What is this relation called?

Answer: Many-to-Many

Q8. Based on the previous question, where should I save the grade of each student in each course?

Answer: Student_Course (pivot) table

Q9. We have a Person entity and a CNIC entity where a person can only have one CNIC and a CNIC just belongs to one Person. What should be the relationship between the Person and CNIC entities?

Answer: One-to-One

Q10. How will we establish the above relationship in the database?

Answer: Add CNIC table ID as a foreign key in the in the Person table

Q11. You want to implement Undo/Redo functionality in a word processor. What do you think is the best data structure for this problem?

Answer: Stack

Q12.You want to create a File Explorer app just like you have on your computer. What do you think is the best data structure for this problem?

Answer: Tree

Q13. Find the Worst Time Complexity of the following code?

```
int i, j, k = 0;
for (i = n / 2; i <= n; i++) {
for (j = 2; j <= n; j = j * 2)
{
k = k + n / 2;
}
}
```

Answer: O(N log N)

Q14. Suppose Tom is 16 year old, and he is four times older than his brother Robert. How old Tom would be when he is twice as old as his brother?

Answer: 24

Q15. You have a analog clock in front of you. What is the angle between hour hand and the mintue hand if the time is 3:15?

Answer: 7.5degree