Reg. No ....   Name **24U650**

END SEMESTER EXAMINATION - MARCH 2024
SEMESTER 6 - INTEGRATED M.Sc. PROGRAMME COMPUTER SCIENCE
COURSE : **21UP6CRMCP20 - MOBILE APPLICATION DEVELOPMENT USING KOTLIN**

(For Regular - 2021 Admission)

Time : Three Hours   Max. Weightage : 30

PART A
Answer any 8 Questions

1. Predict the output of the following code in the context of data classes:
```
data class Person(val name: String, val age: Int)
fun main() {
    val person = Person("John", 30)
    println(person.toString())
}
```

2. List the methods that are automatically derived by the compiler when a data class is defined.

3. List any two ways to register a receiver for broadcast receivers.

4. In the context of execution of statements (Threads), the general procedure follows three steps. Identify the steps.

5. Given the following piece of code, predict the output printed:
```
fun main() {
    val name: String? = "John"
    println(name?.length)
}
```

6. Arrays are static in nature. List any two data structures in Kotlin that helps you to code data structures of dynamic nature.

7. Predict the output of the following code when executed:
```
fun main() {
    val num1: Int = 10
    val num2 = 3
    println(num1 / num2)
}
```

8. Evaluate the following piece of code and predict the output:
```
fun main() {
  val array = arrayOf(1, 2, 3, 4, 5)
  println(array.joinToString(","))
}
```

9. According to Android 6.0's compatibility definition, state the minimum storage capability required (in GB) by Android phones/tablets for user space.

10. List any two ways by which a custom thread can be created.

(1 x 8 = 8 Weight)

PART B
Answer any 6 Questions

11. Discuss with an example, how generic classes are created and instantiated.

12. Discuss the advantages and drawbacks of internal and external storage from the viewpoint of an Android programmer.

13. Prepare a detailed note on infix functions.

14. Explain how default values can be provided for interface methods.

15. Explain how intents are used to send data from a secondary activity back to its main activity.

16. With an example, explain higher order functions and defining function types in Kotlin.

17. Discuss the various data types supported by Kotlin.

18. Write a Kotlin program to calculate Simple Interest by overloading a method called `calcInterest()`. The method takes three arguments - principal, time, and rate.

(2 x 6 = 12 Weight)

PART C
Answer any 2 Questions

19. With suitable examples, explain how functions return a single value and a pair of values.

20. Explain how the `setOnClickListener()` method is used in event handling.

21. Elaborate with necessary examples, on any two collections of `iterable` type.

22. With necessary examples, explain how branched execution is performed in Kotlin.

(5 x 2 = 10 Weight)