

**SAKET GYANPEETH's**  
**Saket College of Arts, Science & Commerce , Kalyan (E.)**

**Computer Science Department**

**S.Y.B.Sc.C.S. SEM IV Internal Assignment Topics February 2024**

**Subject: Theory of Computation**

1. What is Finite automata? Explain it with the help of 5 - tuple definition.
2. Design a finite automata for the following regular expression.  
 $R = 1(0 + 11)^*$
3. Construct the context free grammar representing the set of palindromes over  $\{0, 1\}$
4. Differentiate between deterministic & non deterministic finite automata.

**Subject: Computer Networks**

1. List and explain the component of data communications system?
2. What are the difference between half duplex and full duplex transmission mode?
3. What is Network ? Types of network.
4. What is Multiplexing and Demultiplexing.

**Subject: Software Engineering**

1. write note on waterfall model with the help of diagram.
2. Explain spiral model in brief.
3. Draw a use case diagram on ATM transaction machine.
4. Draw a class diagrams on Bank management system.

**Subject: IoT Technologies**

1. Define and explain IOT.
2. Write short note on IoT protocols
3. compare APU and GPU
4. Difference between M2M and IOT

**Subject: Android Application Development**

- 1) Describe the Activity Life Cycle of Android

- 2) Explain the Architecture of Android in detail with the help of a diagram.
- 3) Explain Android Virtual Device in detail.
- 4) Write a short note on Kotlin.

**Subject: Advanced Application Development**

1. What is Node.js? Where can you use it?
2. Explain callback in Node.js.
3. What is MongoDB?
4. What is the Mongo Shell?

**Subject: Research Methodology**

1. Explain different techniques for defining a research problem.
2. Explain different research designs.
3. List and explain types of research.
4. Explain objectives and motivation in research?

