

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**THIRD SEMESTER M. TECH DEGREE EXAMINATION**

**Electronics & Communication Engineering**  
**(Telecommunication Engineering)**

**04EC7809—RF MEMS**

Max. Marks: 60

Duration: 3 Hours

**PART A**

*Answer All Questions*

*Each question carries 3 marks*

1. Discuss the characteristics of RF MEMS devices?
2. Describe testing of RF MEMS?
3. Discuss the process of bulk micromachining?
4. Explain piezoelectric actuation mechanism in MEMS.?
5. Draw series and shunt cantilever type RF MEMS switch.?
6. List various types of MEMS capacitors?
7. Discuss gap tuning and area tuning capacitors in MEMS?
8. Draw different T Line based tunable matching network?

**PART B**

*Each question carries 6 marks*

9. Discuss with neat diagram front end design of 3-band wireless telephone system?  
OR
10. Describe RF MEMS in phased arrays?
11. Discuss various actuation mechanisms in MEMS?  
OR
12. Describe bulk micromachining technique in MEMS?
13. Illustrate RF FEED Via for On wafer hermetic packaging of MEMS switch?  
OR
14. Draw and explain RF MEMS Switch design in detail?
15. Discuss electromechanical FEM modelling of RF switch?  
OR
16. Explain the Fabrication of MEMS Ohmic switch?
17. Explain MEMS piezoelectric varactors in detail?  
OR
18. Explain the tuning of Toroidal meander type inductors in detail?
19. Explain the reconfigurable patch antenna array using MEMS switch?  
OR
20. Discuss the application of MEMS resonator as an oscillator?