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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Third Semester M.Tech. Degree Examination, Dec 2017

Electronics and Communication

Telecommunication Engineering

01EC 7517: **RF MEMS**

Max. Marks: 60 Duration: 3 Hours

(Answer any two questions from each Part)

PART A

1. a) Distinguish between wet etching and dry etching. (3)

   b) Explain the various Actuation mechanisms for MEMS devices. (6)

2. a) With necessary diagram explain the fabrication of cantilever beam. (6)
   b)Explain about photolithography operation in MEMS. (3)

3. a) Justify the statement deep reactive ion etching is preferred over plasma etching with necessary diagrams. (6)

   b) List out the application of RF MEMS. (3)

PART B

4. a) Discuss the various contact mechanisms that are to be considered while designingMEMS for high frequency applications. (6)

   b) Explain the various losses that switch introduce in RF signal path. (3)

5. a) Discuss the merits of solid state switches over electromechanical switches. (3)

   b) Explain IV characteristics of PIN diode RFswitches. (6)

6. a) Explain the RF design considerations to be taken into account while designing RF switch. (6)

   b) Discuss about RF MEMS switches. (3)

PART C

7. a) Describe about spiral inductors. (4)

   b) With suitable diagrams explain the construction and operation of Meanderinductors. (8)

8. a) Discuss the basic principle of operation of surface acoustic wave filter along with its limitations and applications. (8)

   b) Describe about RF NEMS. (4)

9. a) Explain electrostatic tuning of capacitors with suitable diagrams. (9)

   b) Describe about variable inductors. (3)