

Code: ECMC1T4

PVP 12

I M.Tech-I Semester-Regular Examinations-April 2013

**MICROSTRIP COMPONENTS AND MICROSTRIP
ANTENNAS
(MICROWAVE & COMMUNICATION ENGINEERING)**

Duration: 3 hours

Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. (a) Explain the following terms related to microstrip Antenna

(i) Return loss

(ii) Characteristic impedance

(iii) Percentage bandwidth

(iv) Substrate materials

8 M

b) A 2.0mm thick fused FR-4 substrate with permittivity 4.4 is used to construct a microstrip antenna. If the line resonant frequency is 2.4 GHz find patch dimensions and return loss?

6 M

2. (a) Write in detail about quasi lumped elements ?

7 M

(b) Write about planar circular spiral capacitor with analysis?

7 M

3. (a) Write about microstrip high pass filter prototype models for Butterworth response ? 7 M
- (b) Discuss about open and short circuited stubs with diagrams? 7 M
4. (a) What are the various microstrip antenna configurations explain them? 7 M
- (b) Explain surface phenomenon effect in Microstrip Antennas? 7 M
5. (a) Explain the procedure dimensions of a rectangular microstrip antenna and parameters radiation pattern, bandwidth, beam width and gain? 7 M
- (b) Explain about cavity model for TM₁₀ and TM₀₁ Mode? 7 M
6. (a) Explain about model expansion model of analysis of circular microstrip antenna with neat diagrams? 7 M
- (b) Write short notes on half disc antenna annular antennas? 7 M

7. (a) Compare slot antenna and patch antenna with respect to performance? 7 M
- (b) Write the differences between wide and tapered slot antennas? 7 M
8. (a) Describe various coupling methods to microstrip antennas? 7 M
- (b) Explain in detail about parallel feed for microstrip antennas? 7 M