

Reg. No. :

--	--	--	--	--	--	--	--	--	--

Question Paper Code: 52297

M.E. DEGREE EXAMINATION, NOV 2016

Elective

COMMUNICATION SYSTEMS

15PCM527 - EM BANDGAP STRUCTURES FOR ANTENNAS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) (i) Apply the finite difference approximation for solving the parabolic PDEs. (10)
- (ii) Explain the finite element method with an application. (10)

Or

- (b) Apply the transmission line matrix method for a one dimensional conducting system. (20)

2. (a) (i) Explain various EBG materials and their uses and limitations in micro strip antennas. (15)
- (ii) Mention the limitations of EBG materials. (5)

Or

- (b) Discuss the characteristics of PBG materials and also mention their limitations and applications. (20)

3. (a) Explain the various configurations in EBG structures with a neat diagram. (20)

Or

- (b) (i) Explain the band gap characterization of PBG structures. (10)

(ii) Classify and compare EBG and PBG structures. (10)

4. (a) Explain in detail about the physical origin of photonic band gaps of one dimensional photonic crystal. (20)

Or

(b) (i) Explain about the localized modes at defects of photonic crystals. (10)

(ii) Discuss in brief about the surface states. (10)

5. (a) Explain the design of photonic crystals using a reflecting dielectric for various applications. (20)

Or

(b) (i) Explain about the resonant cavity design for photonic crystals. (10)

(ii) Discuss in detail about the waveguide design. (10)
