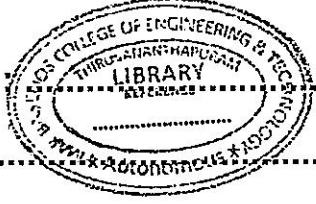


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Reg. No.



Name :

Eighth Semester B.Tech. Degree Examination, April 2022

(2013 Scheme)

13.804 – WIRELESS COMMUNICATIONS (T)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions.

1. What is meant by wireless local loop?
2. Describe the effect of using two house hold cordless phones at the same time.
3. Explain the functions of control channel in mobile system.
4. Suggest methods to improve coverage in cellular systems.
5. How do you quantify grade of service in a telephone system?
6. Differentiate diffraction and scattering.
7. Compare fast fading and slow fading.
8. Explain connection less routing in wireless networks.
9. What are LEOs, MEOs, and GEOs.
10. Briefly explain GPS system.

(10 × 2 = 20 Marks)

P.T.O.



PART – B

Answer any **one** full question from each module. **Each** question carries **20** marks.

Module – I

11. (a) Compare FDD and TDD duplex systems. 5
(b) With a block schematic explain the working of wide area paging system. 7
(c) Discuss different generations of cellular systems. 8

OR

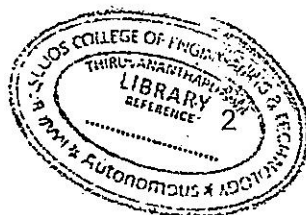
12. (a) Explain WiMAX technology. 10
(b) Explain Bluetooth and ZigBee. 10

Module – II

13. (a) Explain the frequency reuse concept of cellular system and explain the effect of co-channel interference. 10
(b) Prove that for a hexagonal geometry, the co-channel reuse ratio is given by $Q = \sqrt{3N}$ where $N = i^2 + ij + j^2$. 10

OR

14. (a) Draw and explain the frame format of GSM. What are the different physical and control channels in GSM. 10
(b) If a total of 33 MHz of bandwidth is allocated to a particular FDD cellular telephone system which uses two 25 kHz simplex channels to provide full duplex voice and control channels. If 1 MHz of the allocated spectrum is dedicated to control channels determine an equitable distribution of control channels and voice channels in each cell if the system uses seven cell reuse. 10

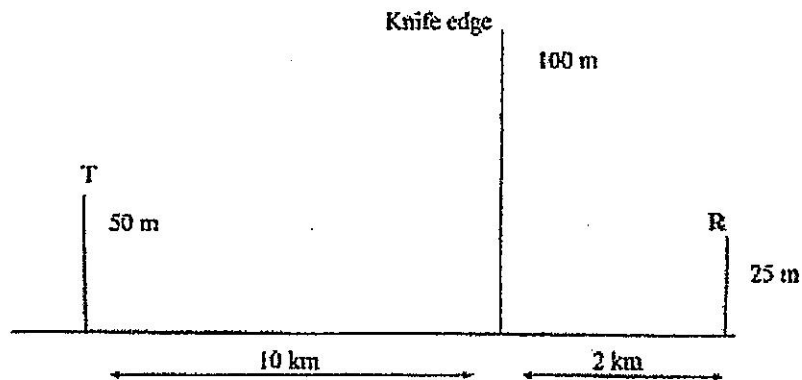


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Module – III

15. (a) With suitable diagram explain the knife edge diffraction model of mobile radio propagation. 10
- (b) In the following geometry, determine the fresnel diffraction parameter and approximate loss due to knife edge diffraction at operating frequency of 900 MHz. 10



OR

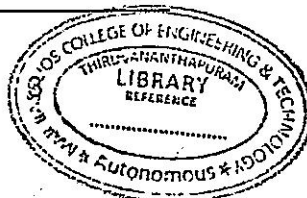
16. (a) Explain different types of small scale fading in wireless systems. 10
- (b) What are MIMO systems? Explain how MIMO systems combat multipath fading? 10

Module – IV

17. (a) Describe OFDM system with a neat block diagram. 10
- (b) Explain different types of spread spectrum multiple access system. 10

OR

18. (a) Describe the features of Cellular Digital Packet Data(CDPD) service. 10
- (b) With a block diagram explain the functions of a satellite earth station. 10
- (4 × 20 = 80 Marks)**



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