

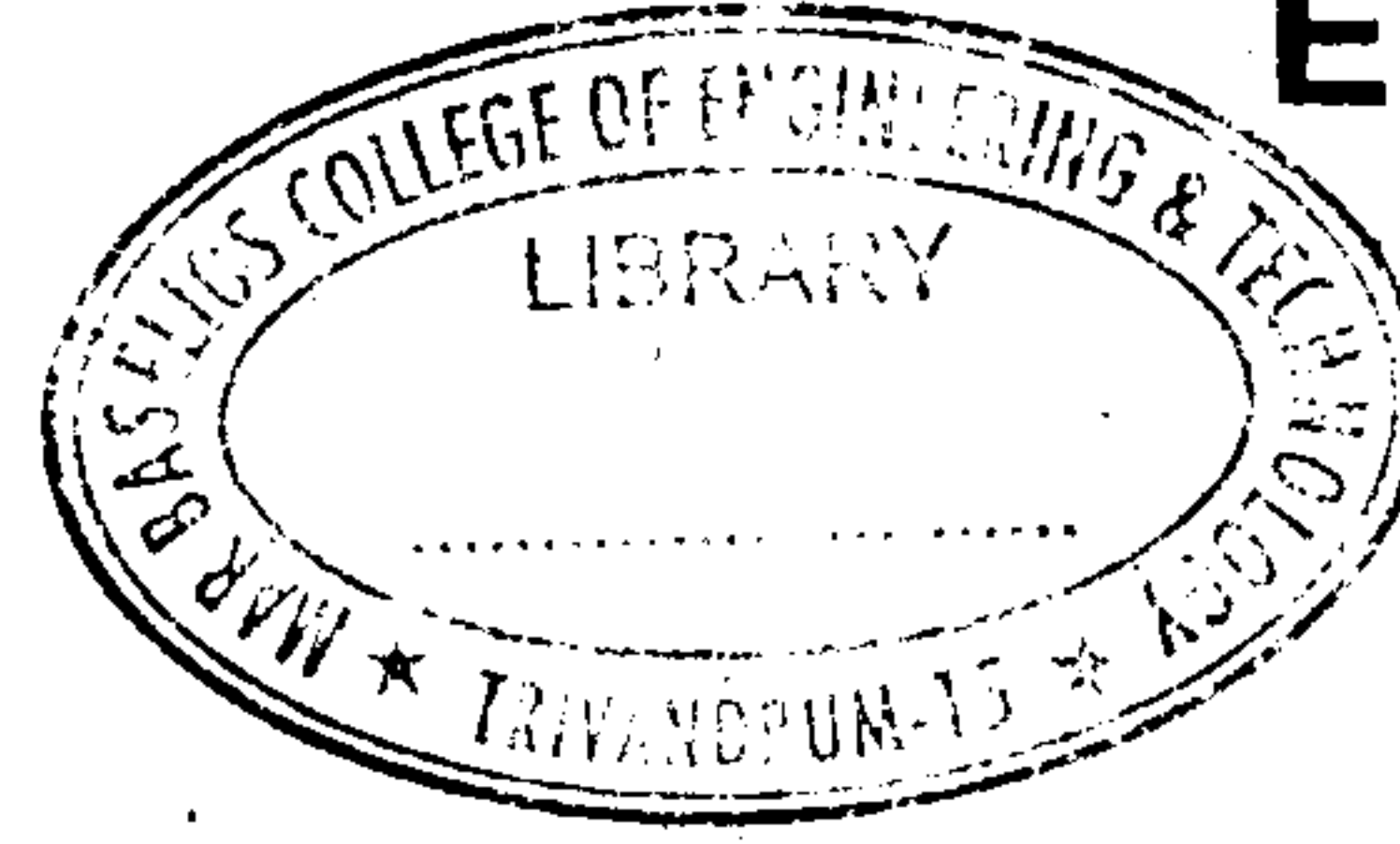


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E – 2472

Reg. No. :

Name :



**Eighth Semester B.Tech. Degree Examination, May 2018
(2013 Scheme)**

13.804 : WIRELESS COMMUNICATIONS (T)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **2** marks. **(10×2=20 Marks)**

1. What are the frequency bands used in satellite communication ?
2. Explain circuit switching.
3. Explain the scattering mechanism of wave propagation.
4. What is frequency selective fading ? Explain.
5. Explain frequency diversity and time diversity.
6. What are the time dispersion parameters of mobile multipath channels ?
7. What is adjacent channel interference ? Explain.
8. Explain the hand off mechanism. What are the practical considerations in performing hand off ?
9. What are the features of WiMAX ?
10. Give a brief description about bluetooth.

P.T.O.



PART – B

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

Module – I

11. a) What are the features of Wireless in Local Loop systems ? **10**
b) Explain the features of cordless phone systems. **5**
c) What are the main features of 2G systems ? **5**

OR

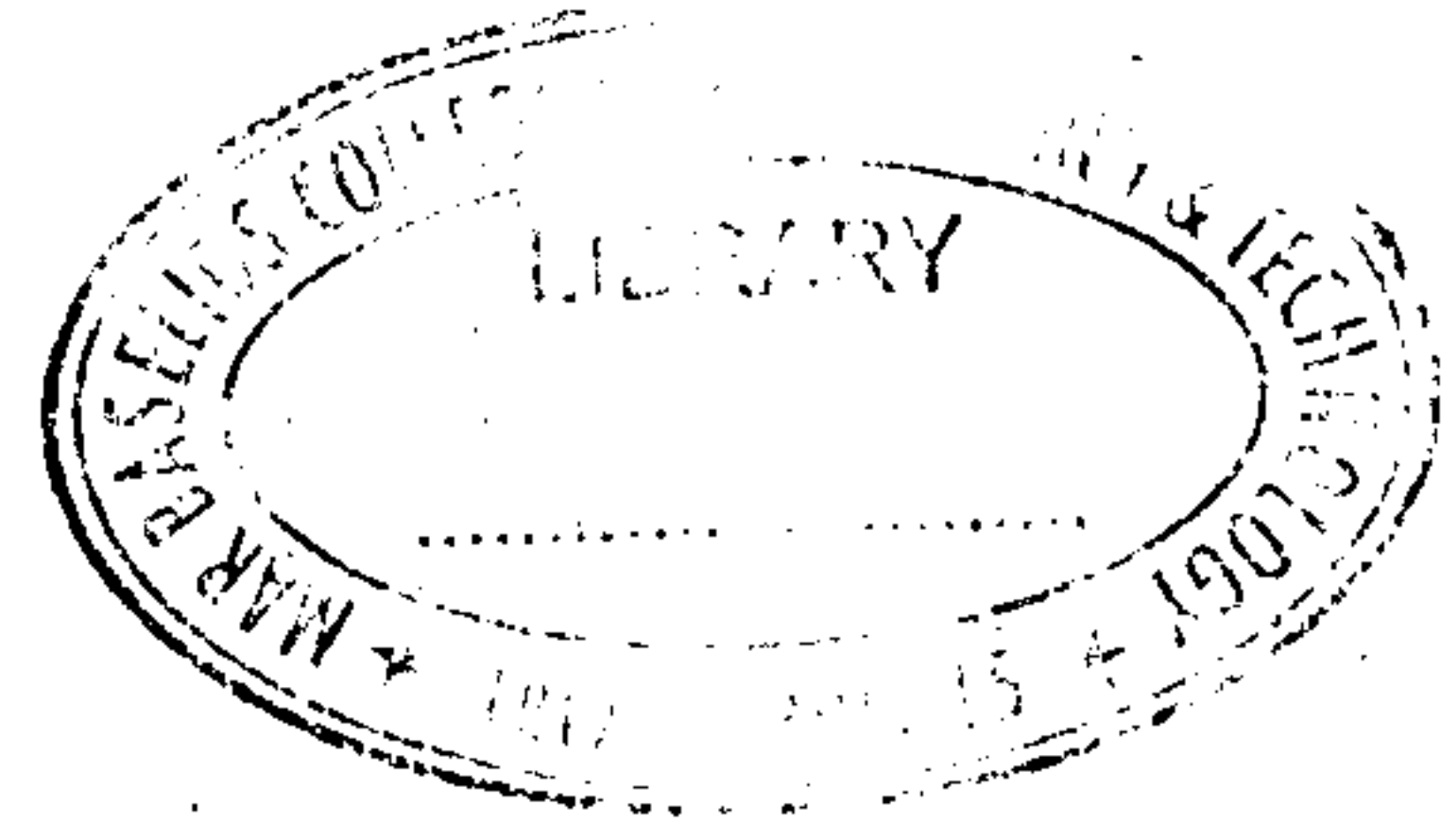
12. Explain the evolution of mobile radio communications, in detail. **20**

Module – II

13. a) Assume each user of a single base station mobile radio system average 3 calls per hour, each call lasting an average of 5 minutes.
i) What is the traffic intensity of each user ?
ii) Find the number of users that could use the system with 1% blocking, if only one channel is available. **(2×4=8 Marks)**
- b) What is co-channel interference ? Derive an expression for the signal-to-interference ratio in terms of co-channel reuse ratio. **7**
- c) Show that the frequency reuse factor for a cellular system is given by k/S , where k is the average number of channels per cell and S is the total number of channels available to the service provider. **5**

OR

14. a) What is frequency reuse ? How is it implemented in GSM ? **10**
b) What are methods used for increasing capacity of cellular system ? **10**



Module – III

15. a) A receiver is located 10 km from a 50 W transmitter. The carrier frequency is 6 GHz. Assume free space propagation, $G_t = 1$ and $G_r = 1$.
- i) Find the power at the receiver.
 - ii) Find the magnitude of the E-field at the receiver antenna. **(2×5=10 Marks)**
- b) Derive an expression for the phase difference between direct path and ground reflected path in two-ray ground reflection model of a channel. **10**

OR

16. What are the methods used for mitigating fading in mobile communication ? Explain in detail. **20**

Module – IV

17. a) What is UMTS ? Explain in detail, its features and spectrum allocation. **10**
- b) Draw the structure of CDPD network and explain its characteristics. **10**

OR

18. a) What are the advantages satellite communication systems ? **5**
- b) What are the functions of a transponder ? **5**
- c) Draw the block diagram of earth station receiver and explain the blocks. **10**
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