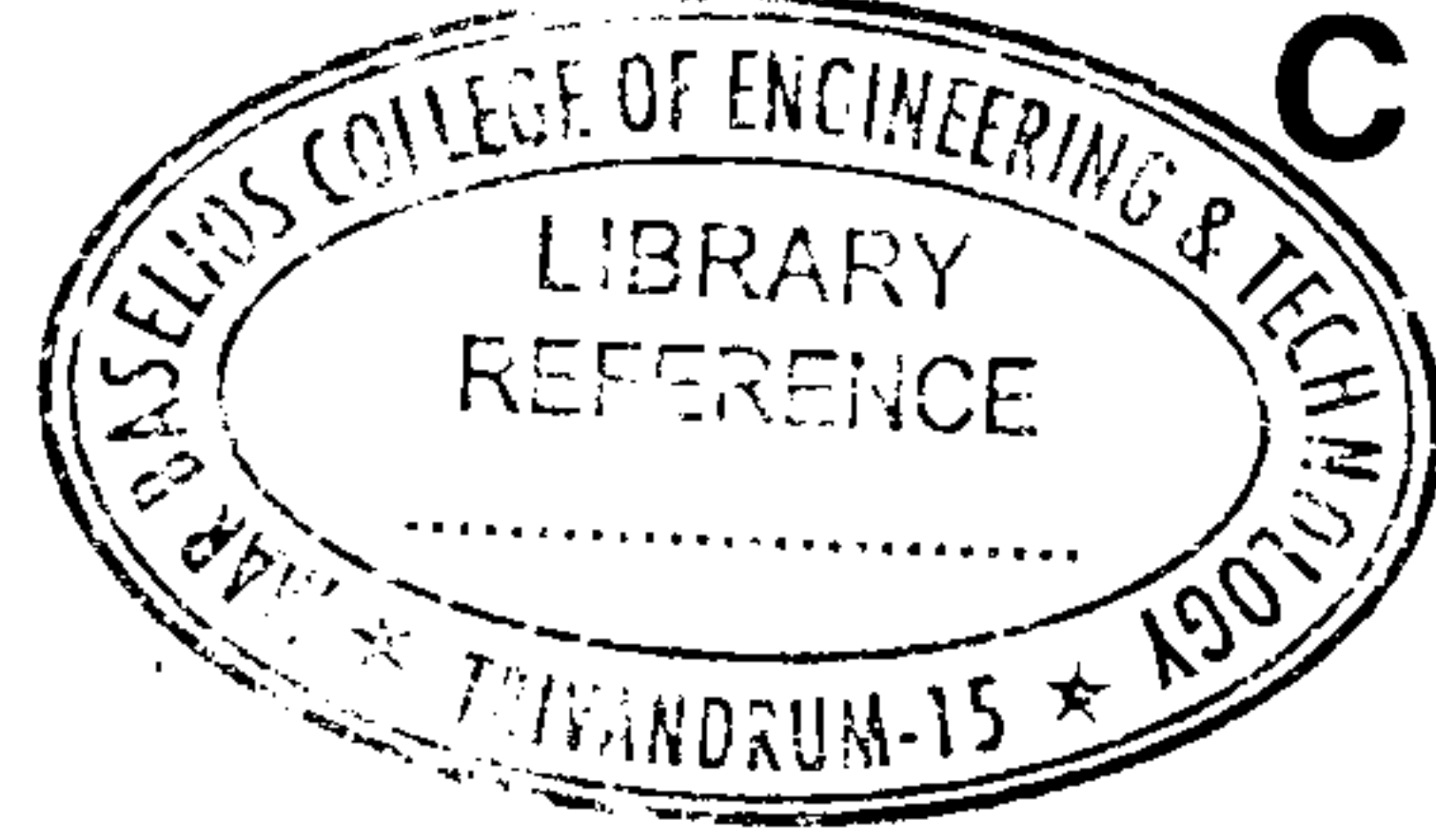




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C – 2457

Reg. No. :

Name :

**Eighth Semester B.Tech. Degree Examination, May 2017
(2013 Scheme)
13.804 : WIRELESS COMMUNICATIONS (T)**

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions.

1. Compare blue tooth and Zigbee technologies.
2. How is WLL different from conventional telephony with Cordless Receiver ?
3. What is frequency re-use in cellular communication ?
4. What is the structure of an MSC in cellular mobile telephony ?
5. Give the free-space model for received power in wireless communication.
6. What is shadow fading ? What is its contribution in multipath fading ?
7. Define array gain of a diversity combining method with an example.
8. Define processing gain in spread spectrum.
9. Compare EDGE and GPRS.
10. List the frequency bands used in satellite up-link and downlink.

(10×2=20 Marks)

PART – B

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

Module – 1

11. a) List out the features of all 4 generations of mobile communication system. **10**
- b) With block schematics, explain briefly WiMAX technology and spectrum allocation. **10**

OR

12. a) Write notes on modulation and multiple access techniques used in 2G and 3G communication system. **10**
- b) With block schematics, explain briefly any low-power wireless communication standard. **10**

P.T.O.

**Module – 2**

13. a) Explain how a call is originated and established in GSM system. **10**
b) Explain the techniques to increase coverage and user capacity in GSM cells. **10**

OR

14. a) Explain the multiple access scheme used in GSM with a neat diagram of one symbol time-frame. **15**
b) Why is hand-off required in mobile communication system ? **5**

Module – 3

15. a) Derive the Two-ray model of path loss and find the received power at a distance 500 m away from a transmitter that transmits at 5 W and 900 MHz, assuming Unit antenna parameters. Given the transmit and receive antenna dimensions $h_t = 50$ m and $h_r = 1$ m, respectively. **10**
b) Show that diversity combining helps to improve Signal to Noise Ratio (SNR). **5**
c) What is parallel decomposition of MIMO channels ? **5**

OR

16. a) Classify fading. How is large scale fading related to multipath fading ? **5**
b) Deduce array gain expression for Maximal-Ratio combining. **10**
c) Explain a method to mitigate wide-band fading. **5**

Module – 4

17. a) With block schematics, explain a Direct-Sequence Spread Spectrum (DSSS) system. **10**
b) How are codes selected for CDMA to ensure user capacity ? Give an example for the code and explain its method of generation. **10**

OR

18. a) With necessary mathematical expressions, explain OFDM system. **8**
b) With neat block schematic, explain a satellite transponder. **7**
c) Write note on GPS. **5**
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