

B.E. (IT) C Sem - VII) CCB 545) (R-2012)

(3 Hours)

[Total Marks: 80]

Note : 1. Question number 1 is **compulsory**.2. Solve any **three** questions out of the remaining **five** questions

- (1) a. Consider that a geographical service area of a cellular system is 4900km^2 . (10)
A total of 1190 radio channels are available for handling traffic. Suppose the area of a cell is 14km^2 .
i) How many times would the cluster of size 7 have to be replicated in order to cover the entire service area? Calculate the number of channels per cell and the system capacity.
ii) If the cluster size is decreased from 7 to 4, How many times would the cluster of size 4 have to be replicated in order to cover the entire service area? Calculate the number of channels per cell and the system capacity for this case.
b. Discuss the threats and challenges in wireless systems. Explain the different types of device security issues. (10)
- (2) a. Why is tunneling required in VPN. What are the protocols which support VPN (10)
b. Explain the main factors of change in economics of wireless technology. (10)
- (3) a. Explain the ZigBee (LR-WPAN) Stack Architecture with a neat diagram. (10)
b. List the 802.11 MAC management functions. Explain in detail Power Management function with a neat diagram (10)
- (4) a. Explain in detail GSM Privacy and Authentication with neat diagram (05)
b. Explain Hidden and exposed terminal problem with solution. (05)
c. Explain the evolution of cellular systems highlighting 1G/2G/3G and 4G (10)
- (5) a. Why is the concept of Spread Spectrum important? Briefly explain FHSS and DSSS concept. (10)
b. Neatly explain the WLL Architecture. Explain the two local loop techniques with diagram. (10)
- (6) Write short notes on (**any 2**): (20)
a) Channel Assignment Strategies
b) WiMax Technology
c) Handoff Process
d) Multiple Access Techniques