Con. 3987-11.   (REVISED COURSE)   **RK-3369**

(3 Hours)   [Total Marks : 100

N. B. :   (1)   Question No. **1** is **compulsory**.

       (2)   Attempt any **four** questions out of remaining **six** questions.

       (3)   Make **suitable** assumptions wherever **necessary** and clearly **justify** them.

1.   (a)   What are the main problems of signal propagation ? Why do radio waves not always follow a straight line ?   5

    (b)   How much of the original GSM network does GPRS need ? Which elements of the network performs the data transfer ?   5

    (c)   Compare IEEE 802-11 and Hiper LAN2.   5

    (d)   What are the primary goals of WAP forum efforts and how they effected in initial WAP protocol architecture ?   5

2.   (a)   Explain the following with respect to Mobile IP :   14

         (i)   IP packet delivery

         (ii)   Agent discovery

         (iii)   Registration

         (iv)   Tunneling and encapsulation.

    (b)   List and explain the applications of ad-hoc networks.   6

3.   (a)   Compare and contrast I-TCP, Snooping TCP, and Mobile TCP.   10

    (b)   Explain reactive routing protocols in an ad-hoc network with examples.   10

4.   (a)   Draw and explain the UMTS core network together with a 3G RNS and 2G BSS.   10

    (b)   Sketch and explain the functional architecture of a GSM system.   10

5.   (a)   Describe the Bluetooth protocol stack with neat diagram.   10

    (b)   How does IEEE 802-11 solve hidden terminal problem ? Explain with necessary diagrams.   10

6.   (a)   What are the functions of authentication and encryption in GSM ? How is the system security maintained ?   10

    (b)   What is the use of spread spectrum ? Sketch the block diagram of the transmitter and receiver of DSSS. Explain what each block does and what the signal looks like (in time and/or frequency domains) at each location in the block diagram with an example.   10

7.   Write notes on any **three** of the following :–   20

       (a)   Threats and Security issues in Mobile Computing

       (b)   Mobile Operating Systems

       (c)   Wireless Broadband (WiMax)

       (d)   Wireless Sensor Networks (WSNs).