Register Number: ………………..

B.TECH DEGREE EXAMINATIONS: MAY 2015

(Regulation 2009)

Sixth Semester

INFORMATION TECHNOLOGY

ITY107: Mobile Communications

Time: Three Hours   Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The ___stores personal, secret data and is protected with a PIN against unauthorized use.
   a) TMSI
   b) EMEI
   c) SIM
   d) IMSI

2. In non-persistant CSMA, stations sense the carrier and start sending if
   a) Medium is congested
   b) Medium is slow
   c) Medium is idle
   d) Medium is busy

3. Which layer comprises of all the functions required for modulation/demodulation, incoming signal detection, sender/receiver synchronization?
   a) MAC Layer
   b) Physical layer
   c) Application Layer
   d) Network Layer

4. The distance r of the satellite to the center of earth is _____
   a) $R=(g*R/(2*\pi*f)^2)^{\frac{1}{3}}$
   b) $R=(g*R/(\pi*f^2)^2)^{\frac{1}{3}}$
   c) $R=(g*R^2/(2*\pi*f))^{\frac{1}{3}}$
   d) $R=(g*R^2/(2*\pi*f)^2)^{\frac{1}{3}}$

5. Groups of piconets is called _____
   a) Pico group
   b) Scatternet
   c) BSS
   d) BTS

6. _____ indicates the standard security mechanism of 802.11.
   a) NAV
   b) PCF
   c) DFS
   d) WEP

7. The contending nodes are resolved during_____ in HYPERLAN
   a) Prioritization phase
   b) Elimination phase
   c) Yield phase
   d) Transmission phase

8. Optimization of tunneling is done
    a) to increase data rate   b) to reduce data rate
    c) to remove triangular routing problem   d) to do encapsulation
9. The reason for activating the slow start is _____
    a) For increasing efficiency   b) For a higher reliability
    c) For security   d) For increasing data rate
10. Wireless Transport Layer Security (WTLS) can be integrated into the _____ architecture on top of WDP.
    a) WTP   b) WDP
    c) WSP   d) WAP

PART B (10 x 2 = 20 Marks)

11. List the factors that influence wireless transmission.
12. List the different type of antennas and its usage.
13. Differentiate between IMSI and TMSI in GSM networks.
14. List any four advantages of third generation (3G) mobile networks.
15. Why is the PHY layer in IEEE 802.11 subdivided?
16. Compare collisions on PHY and MAC layer.
17. How can DHCP be used for mobility and support of mobile IP?
18. List the benefits of dynamic routing.
19. Compare the different types of transmission errors that can occur in wireless and wired networks.
20. What are the enhancements of WAE to the classic client/server model of the web?

PART C (5 x 14 = 70 Marks)

21. a) (i)   Analyze the usage of spread spectrum techniques for communication.   (7)
        (ii) Name the main elements of the GSM system architecture and describe their   (7)
              functions. What are the advantages of specifying not only the radio interface but
              also all internal interfaces of the GSM system?

(OR)

    b)   Describe the benefits of reservation schemes? Discuss how collisions are
              avoided during data transmission? List the disadvantages of reservation
              schemes?

22. a) (i)   Explain the architecture of GSM with a neat sketch.   (10)
        (ii) Write short notes on DAB.   (4)

b) (i) What special problems do customers of a satellite system with mobile phones (7) face if they are using it in big cities? Think of in-building use and skyscrapers.

   (ii) Brief about UMTS reference architecture with neat diagram. (7)

23. a) Examine how Bluetooth protocol stack manages various aspects of the radio link between a master and a slave and the current parameter setting of the devices. Also elaborate on establishment of bluetooth communication.

(OR)

b) Demonstrate how HYPERLAN1 MAC access scheme has an efficient way of sharing the transmission media.

24. a) Explain how tunneling works in general and especially for mobile IP using IP-in-IP minimal, and generic routing encapsulation, respectively. Discuss the advantages and disadvantages of these three methods

(OR)

b) (i) Describe how a mobile node can acquire a new IP address. (7)

   (ii) Compare the topology reorganization in DSDV and DSR routing protocols. (7)

25. a) (i) Describe the components and interface of the WAP architecture (7)

   (ii) Describe the functioning of WTLS protocol. (7)

(OR)

b) Summarize the reasons for which a classical TCP cannot be used in wireless environment. Compare the classical enhancements made to TCP for mobility

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