KINGS
COLLEGE OF ENGINEERING

DEPARTMENT OF INFORMATION TECHNOLOGY

QUESTION BANK

SUBJECT CODE& NAME: IT1403 MOBILE COMPUTING

YEAR / SEM   **: IV / VIII**

UNIT-1
WIRELESS COMMUNICATION FUNDAMENTALS

PART – A (2MARKS)

1. What are the 3 fundamental propagation behaviors depending on their frequency?
2. What is multipath propagation?
3. What is guard space?
4. What is the 3 different basic schemes analog modulation?
5. What is the use of Phase Lock Loop (PLL)?
6. What is hopping sequence?
7. What is dwell time?
8. What are the advantages of cellular systems?
9. What is browsing channel allocation and fixed channel allocation?
10. What are the disadvantages of cellular systems?
11. What is digital sense multiple access?
12. What is Network and Switching subsystem?
13. What is authentication centre?
14. What is called burst and normal burst?
15. What are the basic groups of logical channels?
16. Define traffic multi frame and control multi frame?
17. What is OVSF?
18. Specify the steps perform during the search for a cell after power on?
19. Explain about transparent mode?
20. What are the basic classes of handovers?
21. When are tuning frequency and frequency considered?
22. How can you utilize mobile antennas efficiently?
23. Compare various modulation techniques.
24. Define the relation between the data rate and bandwidth. What has harmonics to do with bandwidth?

PART –B

1. Discuss briefly the multiplexing techniques. (16)
2. Explain about the signal propagation. (16)
3. Discuss about the cellular system. (16)
4. List the difference between SDMA /TDMA /FDMA/CDMA. (16)
5. What is spread spectrum with its types. (16)
6. Explain about the TDMA. (16)
7. Why CDMA is needed and explain it with an example? (16)
8. Why do MAC scheme in wired network fail in wireless networks and how
   does the multiple access with collision avoidance (MACA) scheme work? (16)
9. Define modulation and explain the method for analog modulation
   techniques in details. (16)
10. Discuss briefly the code division multiplexing techniques. (16)
11. Discuss briefly the advanced phase shift keying. (16)
12. a. Explain about cellular wireless network. (08)
    b. Explain about wireless transmission. (08)
13. Consider three users and Barker code of six bits each for the users transmitting
    the signals, introduce noise and near / far problem while transmitting and
    reconstruct the data in the receiving side providing the proper counter
    measures for the complications. (16)
14. a.Table the frequency bands used for wireless applications with their ranges,
    propagation models and applications. (08)
    b. Represent diagrammatically the protocol machines for multiple access
    with collision avoidance. (08)

UNIT-2
TELECOMMUNICATION NETWORKS

PART – A (2 MARKS)

1. Specify the security services offered by GSM.
2. What is the frequency range of uplink and downlink in GSM network?
3. What are the two basic groups of logical channels in GSM?
4. What are the control channel groups in GSM?
5. List out the numbers needed to locate an MS and to address the MS.
6. What are the four possible handover scenarios in GSM?
7. What is meant by GGSN?
8. What is meant by SGSN?
9. What is meant by BSSGP?
10. Define the protocol architecture of DECT.
11. Specify the standards offered by TETRA.
12. How many ITU standardized groups of 3G radio access technologies are there
    in IMT-2000?
13. What are the steps perform during the search for a cell after power on?
14. What are the two basic classes of handover?
15. What are the two basic transport mechanisms used by DAB?

16. What are the two transport modes defined for MSC?
17. Define the terms:
    i. Earth Station.
    ii. Uplink.
18. Define Elevation Angle.
19. What are the factors limited the number of sub channels provided within the satellite channel?
20. Differentiate Broadcast from Multicast.
21. Detail the features of MSAT.
22. How can an efficient routing be made in satellite systems?
23. What do you understand by co channel interference and adjacent?
24. Describe the services provided by GSM network.

PART –B

1. Explain GSM architecture. (16)
2. Explain Satellite networks in detail. (16)
3. Write short notes on DAB. (16)
4. Write short notes on DVB. (16)
5. Explain DECT. (16)
6. Explain in details the functioning of GPRS. (16)
7. Compare GEO, MEO and LEO (16)
8. Sketch the data network in your campus. How many hosts are there and how large is the user population? What is the speed of the access link to the Internet? How so you gain access to the Internet? How much does home access to the Internet costs? (16)

9. a. Consider a mobile user who is migrating from a place to another place provide him a seamless service by satellite system, also sketch the architecture. (08)
   b. Discuss the importance of DECT Protocol Layers. (08)

UNIT-3
WIRELESS LAN

PART – A (2 MARKS)

1. What are the advantages of WLANS?
2. Mention some of the disadvantages of WLANS.
3. Mention the design goals of WLANS.
4. What is the difference between infrastructure and ad-hoc networks?
6. Mention the features of infrared transmission.
7. What are the disadvantages of infrared transmission?
8. Mention the features of radio transmission.
9. What are the disadvantages of radio transmission?
10. Define frequency hopping spread spectrum.
11. Define random back off time.
12. What is Traffic Indication Map?

13. What is Delivery Traffic Indication Map?
14. What is Ad-hoc TIM?
15. What is meant by roaming?
16. Mention the features of HIPERLAN1.
17. What are the three phases of medium access in EY-NPMA?
18. Mention the elements of Bluetooth core protocols.
19. What is the purpose of sniff state?
20. What is the use of hold state?
21. What is the purpose of park state?
22. In what functionality Switches differ from Routers.

PART – B

1. Explain the architecture and features of IEEE 802.11 in details. (16)
2. Explain the MAC layer in IEEE802.11. (16)
3. Explain HIPERLAN in detail. (16)
4. Write short notes on Bluetooth. (16)
5. Explain the service offered by IEEE802.11 standard. (16)
6. Explain how power management is done in IEEE 802.11 infrastructure
   based and ad hoc networks. (16)
7. Discuss how to increase the quality of service in an ad hoc network. (16)
8. a. Detail the time-bounded service on top of the standard DCF
      mechanism where ad hoc networks cannot use the function. (08)
   b. Discuss the PHY frame format of an IEEE 802.11 using the spread spectrum
      technique which separates by code. (08)
9. a.The channel access control sublayer of HIPERLAN offers a connectionless
      data transfer service to the higher MAC layer. Justify the above statement with
      related references. (08)
   b.Discuss the functionalities and support provided by L2CAP. (08)

UNIT -4
MOBILE NETWORK LAYER

PART – A (2 MARKS)

1. What are the requirements of mobile IP?
2. Mention the different entities in a mobile IP.
3. What do you mean by mobility binding?
4. Define a tunnel.
5. What is encapsulation?
6. What is decapsulation?
7. Define an outer header
8. Define an inner header.
9. What is meant by generic routing encapsulation?
10. What is the use of network address translation?
11. Define triangular routing.
12. What is meant by a binding cache?
13. Define binding request.

14. What is known as Binding update?
15. Explain binding acknowledgement.
16. Define binding warning.
17. Explain cellular IP.
18. What are the advantages of cellular IP?
19. What is known as mobility anchor point?
20. Explain destination sequence distance vector routing.
21. What are the two things added to the distance vector algorithm?
22. How the dynamic source routing does divide the task of routing into two separate problems?

PART – B

1. a. What are the requirements of a mobile IP?   (08)
   b. Describe Dynamic host configuration protocol.   (08)
2. a. Discuss the routing algorithm in ad-hoc network.   (08)
   b. What are the entities in mobile IP?   (08)
3. a. Discuss how optimization in achieved in mobile IP.   (08)
   b. Explain tunneling and encapsulation in mobile IP.   (08)

4. Explain how dynamic source routing protocols handles routing with an example.   (16)
5. Discuss and detail the differences in topology reorganization in DSDV and DSR routing protocols.   (16)
6. a. What are the general problems of mobile IP regarding security and support of quality of service? (08)
   b. Name the inefficiencies of mobile IP regarding data forwarding from a correspondent node to a mobile node. What are optimizations and what additional problems do they cause?   (08)

UNIT-5
TRANSPORT AND APPLICATION LAYERS

PART – A (2 MARKS)

1. What is slow start?
2. What is the use of congestion threshold?
3. What led to the development of Indirect TCP?
4. What is the goal of M-TCP?
5. What do you mean by persistent mode?
6. What are the characteristics of 2.5G/3.5G wireless networks?
7. What are the configuration parameters to adapt TCP to wireless environments?
8. State the requirements of WAP.
9. Name the layers of WAP.
10. Name some ICMP messages.
11. What is WTP? What are its classes?
12. What is WSP?
13. Name some features of WSP adapted to web browsing.
14. What is WML?
15. What are the features of WML?

16. What are the advantages of WML Script over WML?
17. Name the libraries specified by WML Script.
18. What are the classes of libraries?
19. Name the operations performed by PAP.
20. What are the components of WAP2.0?
21. How and why does I-TCP isolate problems on the wireless link?

PART – B

1. Explain in detail about traditional TCP in details. (16)
2. Explain classical TCP improvements and snooping TCP. (16)
3. Explain the function of the components of the WAP architecture. (16)
4. Explain the concept of wireless markup language. (16)
5. Explain wireless application protocols with the it's version WAP 2.0 in detail. (16)
6. Describe the operation of the window flow control mechanism. (16)
7. What are the major difference between WAP 2.0 and WAP 1.x? What
   influenced the WAP 2.0 development? (16)