



KINGS

COLLEGE OF ENGINEERING



**DEPARTMENT OF INFORMATION TECHNOLOGY
ACADEMIC YEAR 2011-2012 / ODD SEMESTER**

QUESTION BANK

**Subject Code & Name: IT 1403 /MOBILE COMPUTING
Year / Sem : IV / VII**

UNIT- I

WIRELESS COMMUNICATION FUNDAMENTALS

PART A (2MARKS)

1. Define a cell.
2. What are the shapes related to a cell?
3. What is a periodic signal?
4. What is a "Aperiodic" signal?
5. Differentiate analog and digital signals.
6. What is the importance of digital signals?
7. Define wavelength
8. Differentiate between signal and data.
9. Give the equation for signal to noise ratio.
10. What is the normal operating range of frequency for cell phones?
11. What is the frequency range of microwave transmission?
12. Draw the diagram of multiplexing.
13. What is the principle used in multiplexers?
14. What are the important multiplexing schemes?
15. What are the multiple access schemes?
16. Define guard band.
17. Differentiate DSSS and FHSS.
18. What is the merit and demerit of CDMA technique?
19. At what frequencies ground waves and sky wave propagation takes place?
20. State inverse square law.

21. Classify the radio waves based on the frequency used.
22. State the different types of additional propagation effects of a signal.
23. Define Delay Spread.
24. Why is digital modulation not enough for radio transmission?
25. What is a good code for CDMA?

Part – B (16 MARKS)

1. Explain the different applications of wireless networks and mobile communications. (16)
2. Write notes on the following
 - a. Frequencies for radio transmission (08)
 - b. Signals and their representation (08)
3. Discuss the types of antennas. (16)
4. What are the additional propagation effects? Explain them. (16)
5. What is multi path propagation? What are the effects of it? What are the ways of mitigating those effects? Explain. (16)
6. Explain the different types of multiplexing in detail. (16)
7. Explain the different types of digital modulation techniques. (16)
8. What is spread spectrum technique? What are the types of it? (16)
9.
 - a. Why does CSMA/CD scheme fail in wireless networks? (08)
 - b. Explain the different types of TDMA scheme. (08)
10. Explain CDMA scheme with an example. (16)
11. Compare SDMA, TDMA, FDMA and CDMA techniques. (16)

UNIT- II

TELECOMMUNICATION NETWORKS

Part – A (2MARKS)

1. What is known as 'handoff'?
2. What are the types of handoff?
3. What are the three types of switching methods?
4. What are FACCH and GGSN?
5. What is SMS and EMS?

6. Write short note on QoS in GPRS.
7. What is expansion of SGSN and GR?
8. What is the advantage of DECT system?
9. What are the tele-services related GSM?
10. What are the parameters that the transmission characteristics depend on?
11. Define a phase jitter.
12. What are the different managements under GSM protocol architecture?
13. List two functions supported by physical layer of DECT.
14. What are the functions of MSC in network and switching subsystem?
15. Compare MEO and LEO satellite types.
16. What is a GEO?
17. What are examples of global mobile satellite system?
18. What are the benefits of IMT-2000 over 2G systems? (Give any three).
19. Give few advantages of GEO satellites.
20. What are the new supplementary services in GSM? List any three.
21. What is a CAMEL?
22. What are the advantages of LEO satellites?
23. What is the significance of GPRS?
24. What is HSCSD?
25. What is MSRN and MSISDN?

Part –B (16 MARKS)

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 the system architecture of GSM. (16)
6. Explain the radio interface of GSM. (16)
7. Discuss the protocol architecture of GSM. (16)
8. What is a handover? Explain the different types of it in GSM. (16)
9. Explain the protocol architecture of DECT. (16)
10. Explain the types of handover in UMTS. (16)
11. Explain the characteristics of different orbits of satellites. (16)

12. Draw and explain the components of a DAB sender. (16)
13. Explain how DVB can be used for high-speed internet access. (16)
14. Compare the security features of GSM, UMTS and DECT. (16)

UNIT- III

WIRELESS LAN

Part – A (2MARKS)

1. List three security services under LMP.
2. What are the synchronizing mechanisms possible under LMP?
3. What are the PDU's under LMP that are used to manage Bluetooth device states and modes? List any five.
4. List any three Bluetooth user scenarios.
5. List few functions of Bluetooth.
6. Write short note on protocol architecture of Bluetooth.
7. Differentiate piconet and scatternet in Bluetooth technology.
8. Compare ad hoc and infrastructure network topologies.
9. Which standard supports multi hop ad hoc network topology?
10. What are the three main management wings under IEEE 802.11 standard?
11. What are the two services linked with handoff mechanism in IEEE 802.11?
12. Give the packet frame for WATM.
13. Give two functional requirements of HIPERLAN-1.
14. What are the two features that are necessary in integration of WLAN with cellular systems?
15. Mention any two standards that supports multi-channel operation.
16. List three functional requirement of IEEE802.15 WPAN.
17. What are the frequency bands used in IEEE 802.11b and 802.11a standards?
18. Differentiate Bluetooth and Wi-Fi technologies with respect to number of devices connectivity.
19. What are the bandwidths allocated for IEEE 802.11a and IEEE 802.11b standards?
20. Compare 802.11, 802.11b standards
21. What are the security procedures opted by IEEE 802.11 standard?

22. List any three main requirements of MAC protocol in WATM.
23. What are the new specifications supported by current Bluetooth?
24. What are the two kinds of profiles in Bluetooth 1.1 version?
25. What is the system profiles used in Bluetooth 1.1 version?

Part – B (16 MARKS)

1. Explain the architecture of IEEE 802.11 (16)
2. Explain the MAC layer in IEEE802.11 (16)
3. Discuss in detail about IEEE802.11a. (16)
4. Explain Channel control sub layer in HIPERLAN (16)
5. What is meant by Bluetooth? Describe architecture of BLUE TOOTH. (16)

UNIT- IV

MOBILE NETWORK LAYER

Part – A (2 MARKS)

1. State the requirements of mobile IP.
2. What is COA? How is it assigned?
3. How does a MN identify that it has moved?
4. What are the contents of mobility binding?
5. Define encapsulation.
6. List the types of encapsulation.
7. What are the messages used for mobile IP optimization?
8. State the reasons for reverse tunneling.
9. State any 4 features of IPv6.
10. State the advantages of cellular IP.
11. State the disadvantages of cellular IP.
12. State the advantages of Hawaii. .

13. State the disadvantages of Hawaii.
14. State the advantages of HMIPv6.
15. State the disadvantages of HMIPv6.
16. List out the messages used in DHCP for client initialization.
17. State the uses of mobile ad hoc networks.
18. State any 4 differences between wired networks and ad hoc wireless networks related to routing.
19. Why can't we apply traditional routing algorithms for ad hoc networks? State any 2 reasons.
20. What are the features added by DSDV to distance vector algorithm?
21. What are the parts of on-demand routing algorithm?
22. What are the other metrics considered for routing in ad hoc network?
23. What are the drawbacks of wired networks?

Part – B (16 MARKS)

1. Explain the requirements of a mobile IP? (16)
2. Explain optimization in Mobile IP in detail (16)
3. Explain the role of different entities in mobile IP with an example (16)
4. Explain tunneling and encapsulation in mobile IP. (16)
5. Describe Dynamic host configuration protocol. (16)
6. Explain routing in IPv6. (16)
7. What are the types of registration in mobile IP? Explain. (16)
8. Explain the different routing techniques available for mobile ad hoc network with an example. (16)
9. Explain the agent discovery process in mobile IP. (16)
10. Explain the different approaches available for IPv6 to support mobility. (16)
11. Compare the features of wired network with ad hoc network related to routing. (16)

UNIT- V**TRANSPORT AND APPLICATION LAYERS****Part – A (2 MARKS)**

1. State any 4 improvements to the classical TCP.
2. State any 2 advantages of I-TCP.
3. State any 2 disadvantages of I-TCP.
4. State any 2 advantages of S-TCP.
5. State any 2 disadvantages of S-TCP.
6. State any 2 advantages of M-TCP.
7. State any 2 disadvantages of M-TCP.
8. State any 2 advantages of Transmission / time out freezing.
9. State the main disadvantage of this scheme is the insufficient isolation of packet losses.
10. State any 2 advantages of Transmission / time out freezing.
11. State any 2 disadvantages of Transmission / time out freezing.
12. State any 2 advantages of selective retransmission.
13. State any 2 advantages of Transaction oriented TCP.
14. Who have formed the WAP forum?
15. State the features of WAP Forum solutions.
16. State the layers in WAP architecture.
17. State any 4 WAP working groups.
18. What are the service primitives available in T-SAP?
19. What are the different security levels offered by WTLS?
20. What are the different services offered by WTP?
21. How is reliability achieved in WTP?
22. State the features of WSP/B.
23. List any 4 basic features of WML.
24. List any 4 capabilities of WML script.

25. What are the libraries available for WTA?

Part – B (16 MARKS)

1. Explain traditional TCP. (16)
2. Explain classical TCP improvements (16)
3. Explain WAP in detail. (16)
4. Explain the features of S-TCP. (16)
5. Explain the architecture of WAP. (16)
6. Explain the features of WML (16)
7. Explain the function of WDP. (16)
8. Explain the services offered by WSP. (16)
9. Explain the services offered by WTA with an example. (16)
10. Explain the following:
 - a. Indirect TCP. (06)
 - b. Snooping TCP. (06)
 - c. Performance enhancing proxies. (04)

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