



B.E/B.TECH DEGREE EXAMINATIONS: APR/MAY 2024

(Regulation 2018)

Sixth Semester

COMPUTER SCIENCE AND ENGINEERING

U18CST6002: Wireless Networks and Mobile Systems

COURSE OUTCOMES

- CO1:** Compare various wireless transmission and media access techniques.
CO2: Identify and Interpret fields in GSM and GPRS frame structures.
CO3: Analyze physical, link and network layer characteristics of wireless networks.
CO4: Compare Mechanisms for Improving TCP Performance over Wireless Links.
CO5: Understand 4G features and technologies.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

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|---|-----|-------------------|
| 1. Define modulation and explain its significance in mobile networks. | CO1 | [K ₂] |
| 2. Compare Digital Audio Broadcasting (DAB) and Digital Video Broadcasting (DVB) systems regarding transmission techniques. | CO1 | [K ₂] |
| 3. Compare Wi-Fi and WiMAX technologies. | CO2 | [K ₂] |
| 4. Outline the concept of multiple access techniques in wireless networks. | CO2 | [K ₂] |
| 5. Outline the operation of DHCP in allocating dynamic address. | CO3 | [K ₂] |
| 6. State how power-aware routing algorithms optimize energy consumption in wireless communication. | CO3 | [K ₂] |
| 7. List the reasons why wired TCP cannot be used for wireless networks. | CO4 | [K ₂] |
| 8. Compare WWW and WAP in the context of mobile applications. | CO4 | [K ₂] |
| 9. List the salient features of 4G networks. | CO5 | [K ₂] |
| 10. List the challenges of seamless interworking between WLANs, 3G, and 4G networks? | CO5 | [K ₂] |

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

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|-----|----|--|---|-----|-------------------|
| 11. | a) | Outline the architecture of the Global System for Mobile Communication (GSM). Discuss the functionalities of GSM in terms of localization and calling. | 8 | CO1 | [K ₃] |
| | b) | Outline the GPRS Architecture with the functionality of each of the components. | 8 | CO1 | [K ₂] |
| 12. | a) | Summarize 802.11 - MAC management schemes. | 8 | CO2 | [K ₂] |
| | b) | Analyse the HyperLAN MAC Access scheme with the functionality of each phase | 8 | CO2 | [K ₃] |
| 13. | a) | Analyze with illustration the working of dynamic source routing protocol. | 8 | CO3 | [K ₃] |
| | b) | Outline the concept of Mobile IP and its role in routing in mobile networks. | 8 | CO3 | [K ₂] |
| 14. | a) | Analyze the traditional Transmission Control Protocol (TCP) and its adaptation for mobile environments. | 8 | CO4 | [K ₃] |
| | b) | Outline the architecture of Wireless Application Protocol (WAP) and its components. | 8 | CO4 | [K ₂] |
| 15. | a) | Outline the challenges of seamless interworking between WLANs, 3G, and 4G networks. Discuss the architectures proposed to address these challenges. | 8 | CO5 | [K ₃] |
| | b) | Summarize the architecture of 4G and outline the functionality of each of the elements. | 8 | CO5 | [K ₂] |
| 16. | a) | Comparison of SDMA/TDMA/FDMA/CDMA techniques with illustration | 8 | CO1 | [K ₃] |
| | b) | Analyze the performance of network protocol using any simulator. | 8 | CO3 | [K ₄] |
