3. Define green mobile cloud computing.
4. What is femtocell? How does femtocell help make a mobile network "green"?
5. Explain the MCC-based working model of femtocell.
6. Discuss the green handover algorithm. Also compare handover latency with data size and velocity for green protocol.
7. What are the issues and requirements for green MCC?
8. How do location-based services and applications benefit within the MCC environment when it becomes a "green" network?

References

1. A. Berl, E. Gelenbe, M. D. Girolamo, G. Giuliani, H. D. Meer, M. Q. Dang, and K. Pentikousis, Energy-efficient cloud computing, *The Computer Journal*, 53(7), 1045–1051, 2010.
2. H. T. Dinh, C. Lee, D. Niyato, and P. Wang, A survey of mobile cloud computing: Architecture, applications, and approaches, *Wireless Communications and Mobile Computing*, 13(18), 1587–1611, 2013.
3. X. Wang, A. V. Vasilakos, M. Chen, Y. Liu, and T. T. Kwon, A survey of green mobile networks: Opportunities and challenges, *Mobile Networks and Applications*, 17(1), 4–20, 2012.
4. W. Fisher, M. Suchara, and J. Rexford, Greening backbone networks: Reducing energy consumption by shutting off cables in bundled links, in *Proceedings of the First ACM SIGCOMM Workshop on Green Networking*, New Delhi, India, ACM, pp. 29–34, 2010.
5. B. Hellen, S. Seetharaman, P. Mahadevan, Y. Yiakoumis, P. Sharma, S. Banerjee, and N. McKeown, ElasticTree: Saving energy in data center networks, *National Spatial Data Infrastructure*, 3, 19–21, 2010.
6. A. M. Marsan, L. Chiaraviglio, D. Ciullo, and M. Meo, Optimal energy savings in cellular access networks, in *Communications Workshops*, Dresden, Germany, IEEE, pp. 1–5, 2009.
7. S. Zhou, J. Gong, Z. Yang, Z. Niu, and P. Yang, Green mobile access network with dynamic base station energy saving, *ACM MobiCom*, 9(262), 10–12, 2009.
8. Z. Niu, Y. Wu, J. Gong, and Z. Yang, Cell zooming for cost-efficient green cellular networks, *IEEE Communications Magazine,* 48(11), 74–79, 2010.
9. A. Mukherjee and D. De, Congestion detection, prevention and avoidance strategies for an intelligent, energy and spectrum efficient green mobile network, *Journal of Computational Intelligence and Electronic Systems*, 2(1), 1–19, 2013.
10. J. Zhang, G. Roche, and L. De, *Femtocells: Technologies and Deployment*, John Wiley & Sons Ltd., Chichester, U.K., 2010.
11. S. Yeh, S. Talwar, S. Lee, and H. Kim, WiMAX femtocells: A perspective on network architecture, capacity, and coverage, *IEEE Communications Magazine,* 46(10), 58–65, 2008.
12. H. Claussen, L. Ho, and L. G. Samuel, Self-optimization of coverage for femtocell deployments, in *Wireless Telecommunications Symposium*, Pomona, CA, IEEE, pp. 278–285, 2008.
13. I. Ashraf, L. T. W. Ho, and H. Claussen, Improving energy efficiency of femtocell base stations via user activity detection, in *Proceedings of IEEE Wireless Communications and Networking Conference*, Sydney, Australia, pp. 1–5, 2010.
14. Y. S. Chen and C. Y. Wu, A green handover protocol in two-tier OFDMA macrocell–femtocell networks, *Mathematical and Computer Modelling*, 57(11), 2814–2831, 2013.
15. N. V. Rodriguez, P. Hui, J. Crowcroft, and A. Rice, Exhausting battery statistics: Understanding the energy demands on mobile handsets, in *Proceedings of the Second ACM SIGCOMM Workshop on Networking, Systems, and Applications on Mobile Handhelds*, New Delhi, India, ACM, pp. 9–14, 2010.

16. F. R. Dogar, P. Steenkiste, and K. Papagiannaki, Catnap: Exploiting high bandwidth wireless interfaces to save energy for mobile devices, in *Proceedings of the Eighth International Conference on Mobile Systems, Applications, and Services*, San Francisco, CA, ACM, pp. 107–122, 2010.
17. X. Lu, E. Erkip, Y. Wang, and D. Goodman, Energy efficient multimedia communication over wireless channels, *IEEE Journal on Selected Areas in Communications*, 21(10), 1738–1751, 2003.
18. S. A. Baset, J. Reich, J. Janak, P. Kasparek, V. Misra, D. Rubenstein, and H. Schulzrinnne, How green is IP-telephony, in *Proceedings of the First ACM SIGCOMM Workshop on Green Networking*, New Delhi, India, ACM, pp. 77–84, 2010.
19. J. He, P. Loskot, T. O'Farrell, V. Friderikos, S. Armour, and J. Thompson, Energy efficient architectures and techniques for Green Radio access networks, in *Fifth International ICST Conference on Communications and Networking*, Beijing, China, IEEE, pp. 1–6, 2010.
20. A. Mukherjee, S. Bhattacherjee, S. Pal, and D. De, Femtocell based green energy consumption methods for mobile network, *Computer Networks*, Elsevier, 57(1), 162–178, 2012.
21. M. Kaur, G. Kaur, and P. Singh, A radical energy efficient framework for green cloud, *International Journal of Emerging Trends and Technology in Computer Science*, 2(1), 171–175, 2013.
22. J. Baliga, R. W. Ayre, K. Hinton, and R. S. Tucker, Green cloud computing: Balancing energy in processing, storage, and transport, *Proceedings of the IEEE*, 99(1), 149–167, 2011.
23. A. Beloglazon and R. Buyya, Energy efficient allocation of virtual machines in cloud data centers, in *Tenth IEEE/ACM International Conference on Cluster, Cloud and Grid Computing*, Melbourne, Australia, pp. 577–578, 2010.
24. M. Rahman, J. Gao, and W. Tsai, Energy saving in mobile cloud computing, in *Proceedings of IEEE International Conference on Cloud Engineering*, Redwood City, CA, pp. 285–291, 2013.
25. B. Li, J. Li, J. Huai, T. Wo, Q. Li, and L. Zhong, EnaCloud: An energy-saving application live placement approach for cloud computing environments, in *IEEE International Conference on Cloud Computing*, Bangalore, India, pp. 17–24, 2009.
26. P. A. Miettinen and J. K. Nurminen, Energy efficiency of mobile clients in cloud computing, in *Proceedings of the Second USENIX Conference on Hot Topics in Cloud Computing*, USENIX Association, New York, p. 4, 2010.
27. K. Kumar and Y. Lu, Cloud computing for mobile users: Can offloading computation save energy? *Computer*, 43(4), 51–56, 2010.
28. N. Vallina-Rodriguez and J. Crowcroft, ErdOS: Achieving energy savings in mobile OS, in *Proceedings of the Sixth International Workshop on MobiArch*, Bethesda, MD, ACM, pp. 37–42, 2011.
29. A. Mukherjee, P. Gupta, and D. De, Mobile cloud computing based energy efficient offloading strategies for femtocell network, *Applications and Innovations in Mobile Computing*, 2014, 28–35, 2014.
30. A. Ravi and S. K. Peddoju, Energy efficient seamless service provisioning in mobile cloud computing, in *IEEE Seventh International Symposium on Service Oriented System Engineering*, Redwood City, CA, pp. 463–471, 2013.
31. X. Ma, Y. Cui, and I. Stojmenovic, Energy efficiency on location based applications in mobile cloud computing: A survey, *Procedia Computer Science*, 10, 577–584, 2012.
32. M. B. Kjærgaard, J. Langdal, T. Godsk, and T. Toftkjær, EnTracked: Energy-efficient robust position tracking for mobile devices, in *Proceedings of the Seventh International Conference on Mobile Systems, Applications, and Services*, Krakow, Poland, ACM, pp. 221–234, 2009.
33. M. B. Kjærgaard, S. Bhattacharya, H. Blunck, and P. Nurmi, Energy-efficient trajectory tracking for mobile devices, in *Proceedings of the Ninth International Conference on Mobile Systems, Applications, and Services*, Washington, DC, ACM, pp. 307–320, 2011.
34. J. Paek, K. Kim, J. P. Singh, and R. Govinda, Energy-efficient positioning for smartphones using cell-id sequence matching, in *Proceedings of the Ninth International Conference on Mobile Systems, Applications, and Services*, Washington, DC, ACM, pp. 293–306, 2011.
35. I. Constandache, S. Gaonkar, M. Sayler, R. Roy Choudhury, and L. Co, EnLoc: Energy-efficient localization for mobile phones, in *INFOCOM*, Rio de Janeiro, Brazil, IEEE, pp. 2716–2720, 2009.