

Self-assessment test 3

Other networks and connectivity

1. What are the different types of connectivity that need to exist in order the user to get Internet access?
2. What are the advantages and disadvantages of submarine cables when compared to satellite connections for establishing international connectivity?
3. Is it appropriate to connect a region on the West coast of Africa to the East coast via a satellite assuming there is a submarine cable from one to the other region? Why or why not?
4. What are the types of satellites that exist according to the orbit in which they are located?
5. Which of the following is not a characteristic of PSTN
 - a. Uses packet switching
 - b. ITU is international regulation body
 - c. Can be used to connect a user to the ISP
 - d. It was developed for more than 100 years
 - e. Built to provide transmission of voice
6. Write the full name for the following acronyms
 - a. PSTN
 - b. POTS
 - c. ITU
 - d. ADSL
 - e. GSM
 - f. SIM
 - g. SMS
 - h. TDMA
 - i. FDMA
 - j. CDMA
 - k. 2G
 - l. GPRS
 - m. Wi-Fi
 - n. WiMAX
 - o. MANET
7. Give a definition for the following terms
 - a. Local loop
 - b. Last mile access
 - c. International connectivity
 - d. Telephone switch
 - e. Narrowband connection
 - f. Broadband connection
 - g. Dial-up access
 - h. Leased line access

- i. Cable modem
 - j. Base station
 - k. Cellular network
 - l. Splitter
8. Why Internet access via PSTN or cable TV is common in developed world and not so common in developing world?
 9. Which previously built network is used for the last mile connection via ADSL?
 10. Which factors determine the speed of the last mile access via ADSL?
 11. What can be built in addition to improve the access speed (last mile connection) with ADSL technology?
 12. What is the difference between copper cables and fiber?
 13. Which technology is prevalent in developing countries, Internet or cell phones? Why?
 14. What are the barriers in developing countries for faster Internet penetration?
 15. Why are the costs for Internet higher in developing countries? Which factors contribute to high costs?
 16. In both developed and developing world there is urban-rural digital divide. Explain why.
 17. What is the etymology of the word "cell" in the cell phone? What are cells in context of mobile telephone network?
 18. Does the mobile telephone network have its origin in PSTN or in the Internet?
 19. Which techniques are used in mobile telephone network to keep separate the voice channels for users in the same cell?
 20. What is the meaning behind 2G, 2.5G, 3G, 4G?
 21. Which older ICT is most widely spread in the rural areas in developing countries? Why?
 22. **Which are the advantages and disadvantages for developing countries from transition from analog to digital TV?**
 23. What is community radio? Why is it often used in developing countries?

Wireless technologies

1. Write the full name for the following acronyms.
 - a. SDMA
 - b. Wi-Fi
 - c. WiMAX
 - d. MANET
 - e. VSAT
 - f. GEO
 - g. LEO
 - h. MEO
 - i. GPS
2. Give a definition for the following terms.
 - a. Amplitude and wavelength of a wave
 - b. Electromagnetic radio spectrum

- c. A property of radio waves called absorption
 - d. A property of radio waves called interference
 - e. Digital dividend of radio spectrum
 - f. White spaces in radio spectrum
 - g. Antenna
3. Which radio waves are more sensitive to obstacles, those with larger or smaller wavelength?
 4. Describe how is the radio spectrum administrated?
 5. Explain the difference between licensed and unlicensed spectrum.
 6. What are the properties of Wi-Fi access technology that makes it very widely spread?
 7. Describe the role of the access point in the wireless Ethernet.
 8. Which standards are used for Wi-Fi? Which standard is the most widely spread?
 9. Wi-Fi was developed as access technology and can span few hundred meters. What is necessary for Wi-Fi to span longer distances and to be used for point-to-point connection?
 10. What are mobile ad-hoc networks? What are their properties? List at least two situations where they can be useful to establish.
 11. What are sensor networks? What kind of sensor networks can be useful in developing world?
 12. What is the standard for WiMAX?
 13. Is WiMAX a complementary technology or an alternative to WiFi?
 14. Describe VSAT technology and its properties.
 15. Why is connecting rural areas with any kind of technology more difficult than establishing connection in an urban area?

Affordable devices and sharing

1. What are the requirements for computing devices in developing world?
2. What does the acronym OLPC mean?
3. What are the concerns with respect to implementing OLPC?
4. What are the two different views with respect to providing ICT devices in developing world?
5. What is meant by sharing ICT devices? Give several examples of sharing ICT devices.
6. What are telecenters?
7. What is Grameen phone?
8. Describe how are messages transferred in the so called "SneakerNet"? How it is done in DakNet?
9. What can an institution do to manage and optimize the use of the shared bandwidth?
10. In which part of the day will you use the Internet in order to get the fastest response in case you are a student at a university in a developing region and the bottleneck in the Internet connection is the University link to the ISP?