

Telecommunication Services Engineering (TSE) Lab



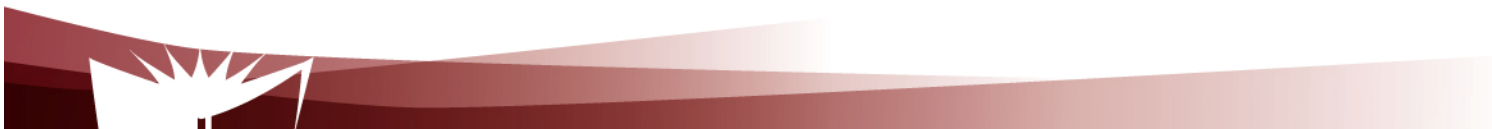
Comments on Quiz #1 –

<http://users.encs.concordia.ca/~glitho/>

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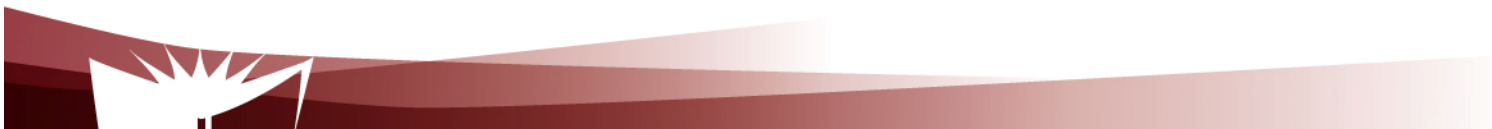
Statistics

- Highest grade: 27.5 (3 students)
- Lowest grade: 7.5 (1 student)
- Average grade: 19.41
- Below 15: 3 students



Question #1

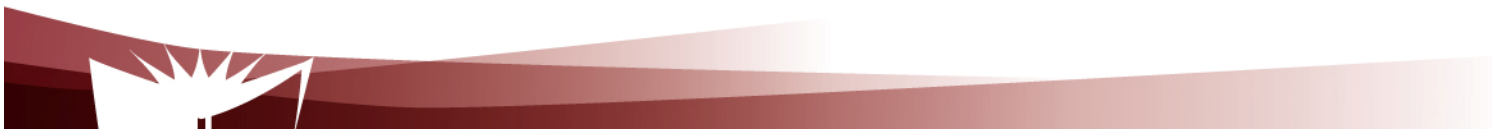
- Give two examples of differences between circuit switched networks and packet switched networks
 - Answer on slide 6 (Chapter I)
 - Almost everybody got the correct answer



Question #2

Give two examples of **application layer protocols** that are used in the IP multimedia subsystem (IMS) and explain the purpose of each one of the two protocols in 1 sentence.

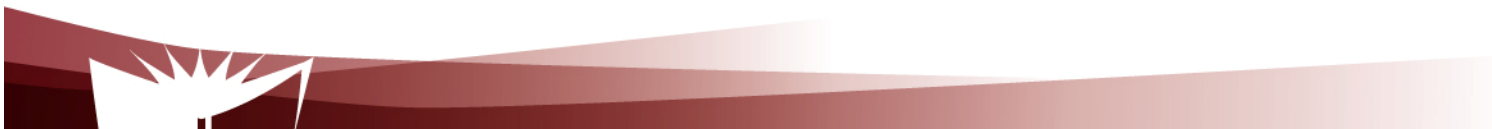
- **Note: RTP (Real Time Transport Protocol) is transport protocol, not an application layer protocol**
- **Examples of application layer protocols used in IMS: SIP, Diameter, SDP**



Question #3

Let us assume a mobile host MH with home domain A, has reached a foreign domain B, while exchanging IPv6 packets with a fixed host FH that belongs to domain B. We further assume we have home agent HA in domain A; and home agent HB in domain B. In addition we assume that the bootstrapping and the registration phases have been successfully completed.

- Draw a sequence diagram with HA, HB, MH, and FH that shows the path the packets sent by FH to MH follow during routing,
- Draw another sequence diagram with HA, HB, MH, and FH that shows the path the packets sent by MH to FH follow during routing,
- Please note that the packets exchanged during discovery and registration should not appear on any of the two diagrams.
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Question #3

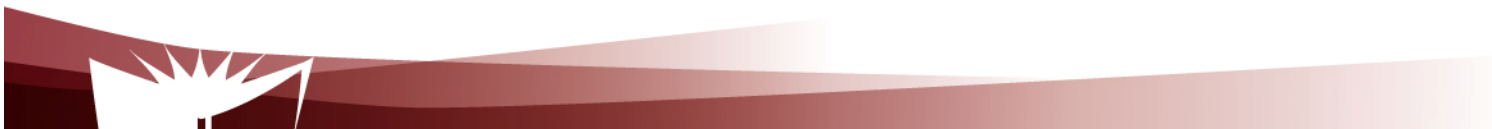
1.

FH ——— HA ——— MH

Notes:

1. Packets are always sent to the home of the host (HA)
2. HB is not involved in the exchange

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Question #3

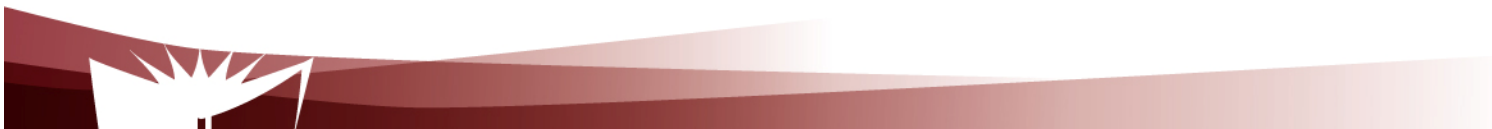
1.

MH ——— HA ——— FH

Notes:

1. Packets transit through home agents only when hosts are roaming (FH is not roaming – it receives directly packets without the involvement of its home agent)
2. HB is not involved in the exchange

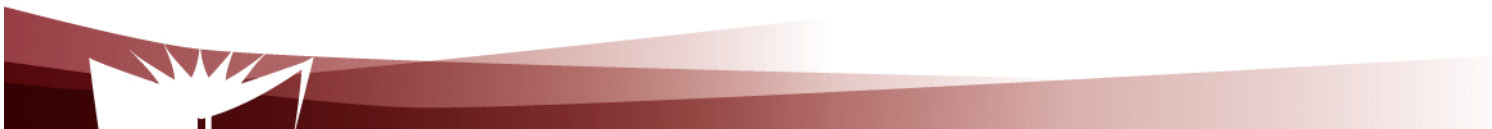
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Question #4

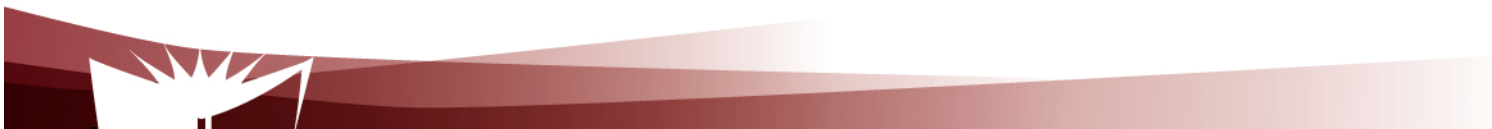
What are the entities of a wireless sensor network (WSN)?
Define each entity in 1 sentence.

- Course notes (Chapter 4)
 - Sensors
 - Aggregators
 - Sinks
 - Gateways



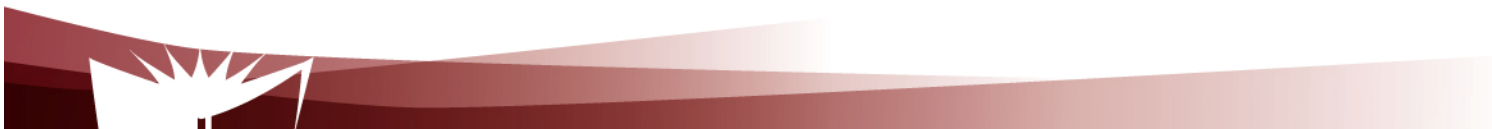
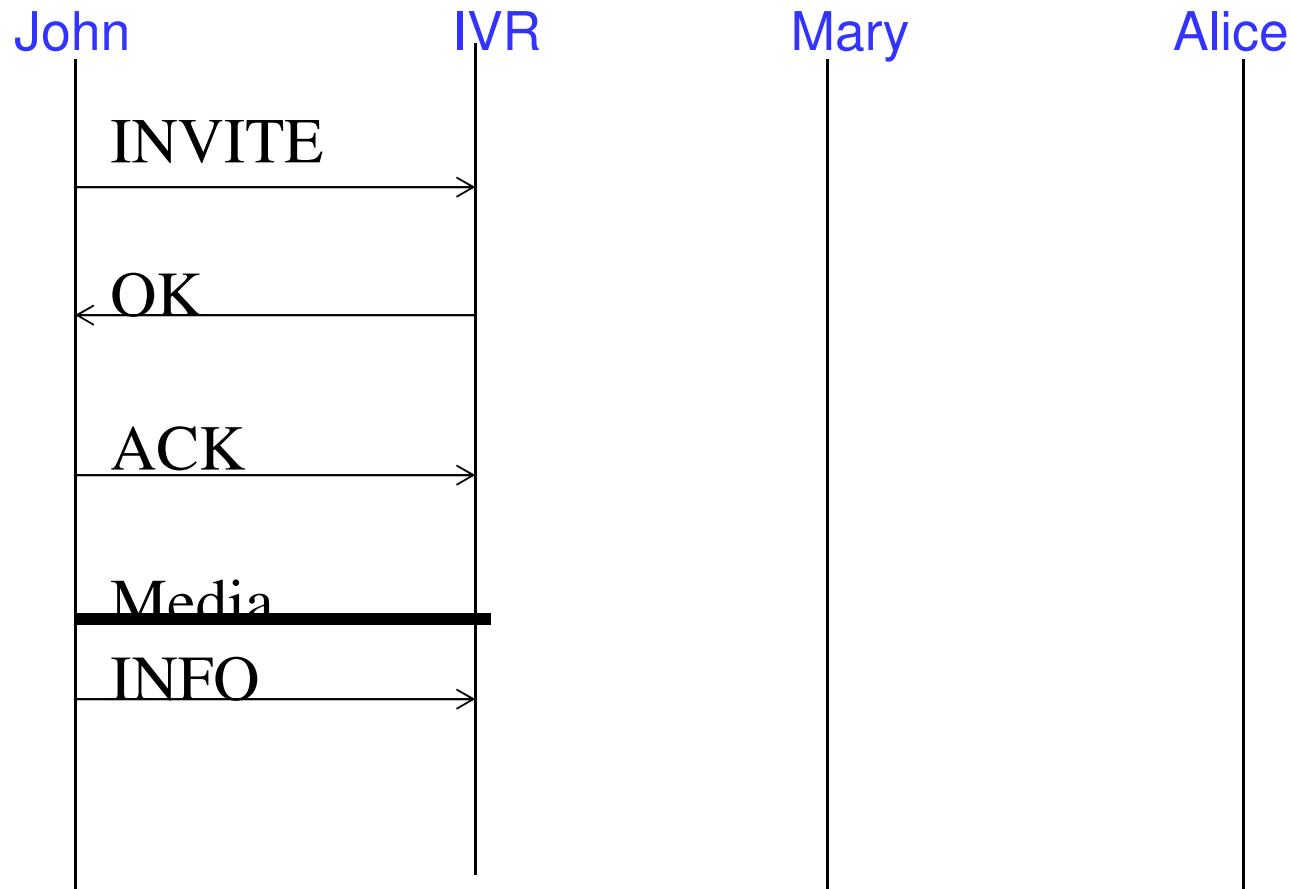
Question #5

John wishes to talk to Mary and dials the number of the company where Mary works. He gets a voice message from an IVR system asking him to dial Mary extension. He dials the extension, but Mary has decided to forward all her calls to Alice. Draw the full sequence diagram with the appropriate SIP messages, starting from when John dials the number of the company till a full call establishment between John and Alice assuming that Alice is not busy. The following entities should appear on the diagram: John, IVR, Mary, Alice. For simplicity sake, we assume that no SIP proxy is involved.



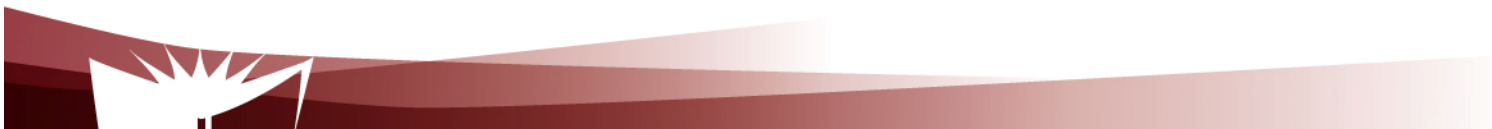
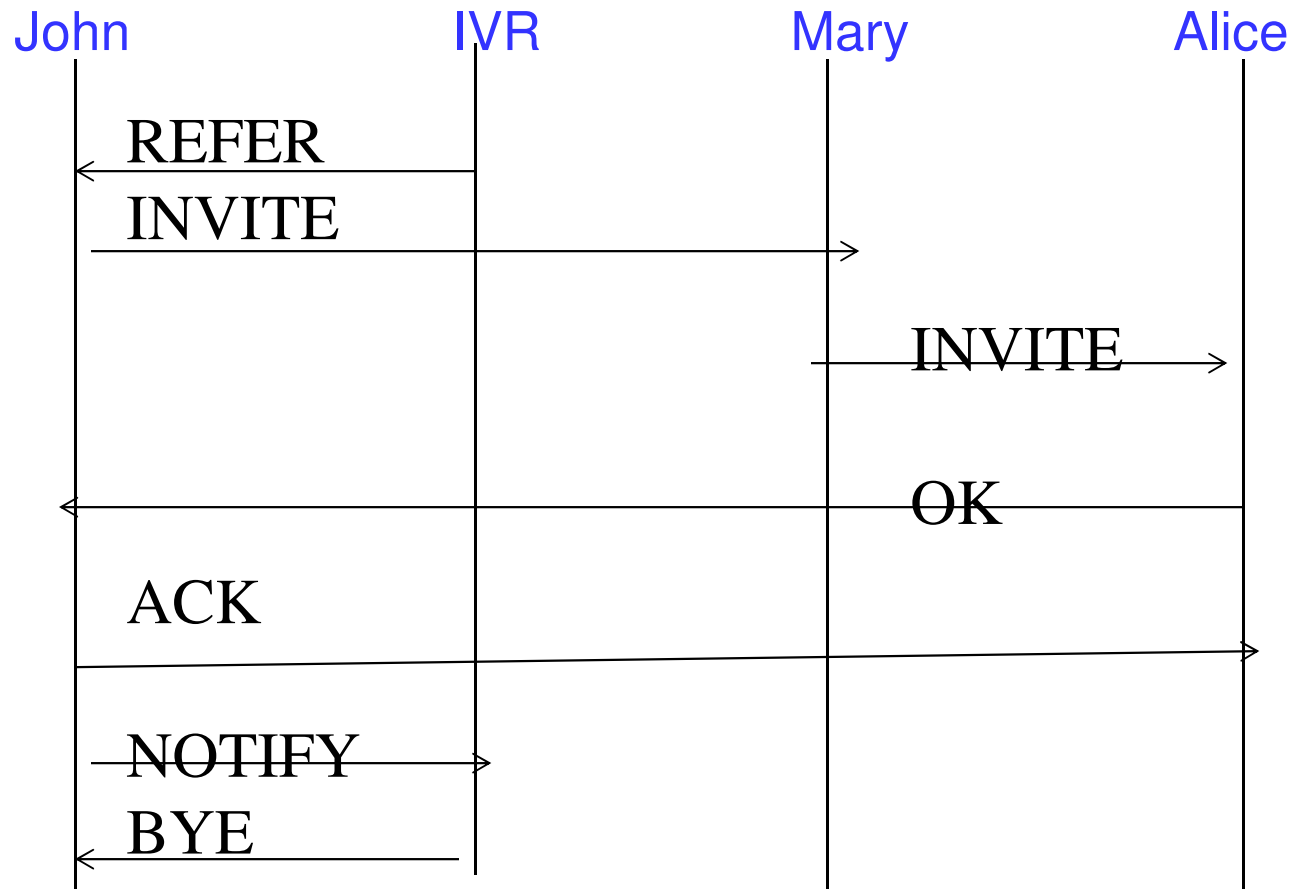
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Question #5 (Part I)



Question #5 (Part II)

Several possible solutions



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Question #6

- Give an example of technology that is mandatory for RESTful Web services and define the technology in 1 sentence.
- Give also an example of technology that is optional for RESTful Web services and define the technology in 1 sentence.
- Course notes (Chapter 4) - Examples
 - HTTP
 - XML

