**Elec 6861 – Higher Layer Telecommunication Protocols Final Exam**

**Note: Please answer each question to the best of your understanding. No additional information will be provided during the quiz.**

**Question 1**

Let us assume Peter establishes a call between John and Mary using the third party call control mechanism. During the conversation between John and Mary, Mary decides to transfer the call to Alice at Alice office number using an un-blind call transfer mechanism. When the call reaches Alice office number, it is answered by the Interactive Voice Response (IVR) of the office. The IVR then ask John to enter Alice extension. When the extension is entered the call finally goes to Alice who answers. Draw a sequence diagram with SIP messages starting from when Peter establishes a call between John and Mary to when a call is finally established between John and Alice. The following entities should appear on the diagram: Peter, John, Mary, IVR and Alice.

**Question 2**

Let us assume a SIP dial-in conference between Peter, John and Mary. Let us further assume that Peter and John know the conference focus address while Mary does not know it. Draw a full sequence diagram that leads to the establishment of the conference between Peter, John and Mary.

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**Question 3**

Give two examples of features IMAP offers and POP does not offer.

**Question 4**

Give an example of transport protocols other UDP and TCP and for the protocol given as example, give an example of difference with UDP and an example of difference with TCP.

**Question 5**

Give two examples of transport protocols other than DCCP and for each protocol given as example, give an example of difference with DCCP