Assignment 4

Deadline: Thursday 11/05/2017 @ 23:59

**[Total Mark for this Assignment is 40]**

***Network Management***

***IT340***

**Instructions:**

* This Assignment must be submitted on Blackboard via the allocated folder.
* Email submission will not be accepted.
* You are advised to make your work clear and well-presented, marks may be reduced for poor presentation.
* You MUST show all your work.
* Late submission will result in ZERO marks being awarded.
* Identical copy from students or other resources will result in ZERO marks for all involved students.
* Convert this Assignment to PDF just before submission.

Student Details:

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| **Name:** ###  **CRN:** ### |  | **ID:** ### |
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# Question One

***10 Marks***

*Learning Outcome(s):*

*Instructors: State the Learning Outcome(s) that match this question*

The downstream channel bandwidth for the cable modem is 6 MHz. Calculate the bit rate if the signal is:a. QPSKb. 64-QAM

Answer:

1. QPSK has a 2-bits per baud. The baud rate is the same as bandwidth. Hence, for a 6 MHz downstream bandwidth, baud rate is 6x106, and bit rate is 12 Mbps.
2. 64-QAM has 6 bits per baud (26). Baud rate is the same as bandwidth. Hence, the bit rate is 36 Mbps.

# Question Two

***10 Marks***

*Learning Outcome(s):*

*Instructors: State the Learning Outcome(s) that match this question*

Discuss the similarities and the differences between Multichannel multipoint distribution service (MMDS) and Local multipoint.

Answer

MMDS is based on point-to-multipoint architecture. It consists of a head end(BS), antennas, transceivers, and a cable modem equipment at both ends. The range between the base stations (BSs) is 50 km. It operates at 2.5 to 2.686 GHz band. Could operate on multichannels and hence capable of providing 2-way high-speed communication. Downstream propagation is TDM broadcast mode and upstream is TDMA transmission. The system is ideal for rural areas.

The architecture of LMDS is similar to MMDS (Point-to-multipoint architecture). It covers 5 km radius; hence the range between the base stations (BSs) is 10 km which is shorter than MMDS. It operates at 27-28.35 and 31-31.3 GHz bands. It is sensitive to rain attenuation. As in MMDS, it deploys cable modem equipment at both ends. It uses TDM broadcast mode for the downstream propagation and TDMA transmission for the upstream as MMDS.

# Question Three

***10 Marks***

*Learning Outcome(s):*

*Instructors: State the Learning Outcome(s) that match this question*

Draw and explain HAVi protocol architecture.

Ans :



* Application for home entertainment and AV devices
* HAVi Components
  + Device
    - FAV (Full Audio Visual)
    - Intermediate AV
    - Base AV
    - Legacy AV
  + Device control module (DCM): Aggregate of   
     FCMs
  + Functional control module (FCM): Controls   
     application functions
* Peer-to-peer environment

# Question Four (Bonus)

***10 Marks***

*Learning Outcome(s):*

*Instructors: State the Learning Outcome(s) that match this question*

Highlight the differences between the features of traditional networks and next generation networks.

Answer

|  |  |
| --- | --- |
| **Traditional Network features** | **Next generation network features** |
| End-to-end transparency | Packet inspection, NAT |
| Peer-to-peer | NATs/firewalls/servers |
| Connectionless | MPLS |
| Best effort | Real-time demands, bandwidth demands |
| User back-off | QoS guarantees |
| Network empowerment | User empowerment |
| No flow state | Flow state |
| Trust | Hackers everywhere |
| Static addresses | DHCP, mobility |
| Fairness | QoS |
| Terminal-to-host | Mass public residential services, multiterminal, multi QoS |
| Flat network | Access and core domains |
| Simple protocol layering | Protocol maze |
| Research/Defence use | Commercialization, competition, consumer choice |