Assignment 4

Deadline: Thursday 13/05/2017 @ 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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# 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. QPSK b. 64-QAM**

**QPSK:**

**Bit rate = bandwidth \* bits per symbol**

**bits per symbol = log2 = 2**

**Bit rate = 6 \* 2 = 12 Mbps**

**64-QAM:**

**Bit rate = bandwidth \* bits per symbol**

**bits per symbol = log2 (64) = 6**

**Bit rate = 6 \* 6 = 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.**

**Multichannel multipoint distribution service:**

It consists of tall antenna tower, backbone internet connectivity using router and network management system. It has microwave link like architecture. The data rate for MMDS is up to 2 Mbps. The CPE cost and deployment cost lower. Also the distance coverage is 50 – 100 km.

**Local multipoint distribution service:**

It consists of NOC, CPE, BS and Fiber backbone. It has cellular like architecture. The data rate for LMDS is 1 – 10 Mbps. The CPE cost and deployment cost is medium to high. And the distance coverage is 5 – 10 km.

**The similarities are that they are both implemented using cable modem at both ends. Also, the network topology for both of them is point to multipoint.**

# Question Three

*Learning Outcome(s):*

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

***10 Marks***

**Draw and explain HAVi protocol architecture.**

|  |
| --- |
| Application/serviceHAVi |
| **TCP/IP** |
| **IEEE1394** |

**Application for home entertainment and AV devices**

 **HAVi Components**

1. Device
* FAV (Full Audio Visual)
* Intermediate AV
* Base AV
* Legacy AV
1. Device control module (DCM): Aggregate of FCMs
2. Functional control module (FCM): Controls application functions
3. 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.**

**The traditional network:**

A traditional network management based. In the application layer. pre-determined routing of calls based on dialed. Has different Services for different platforms.

**Traditional network each network has its feature and services:**

* The private network has a security.
* The Internet network has a flexibility.
* GSM network has a mobility.
* Cable and television network has content richness.
* The ATM network has a control.
* The optical network has bandwidth.
* The public switched telephone network has reliability.

**The next generation network:**

A packet based network, it’s able to provide services such as telecommunication services and to make use of multiple broadband. In the application layer - management layer. Dynamic policy based traffic routing. Has multiple Services (Merge phone network, mobile network, internet) in one IP packet network

**Next Generational Network has full features:**

* GSM's mobility
* Private network's security
* Content richness of cable/television
* Internet flexibility
* Ease of Ethernet
* ATM control
* Bandwidth of optical network
* Reliability of PSTN