

**FACULTY OF INFORMATION TECHNOLOGY**  
**BACHELOR OF SCIENCE IN INFORMATICS AND COMPUTER SCIENCE**  
**ICS 2203 - Advanced Networking**  
**Takeaway Assignment 1: A Recap of Basic Subnetting-CORRECTED COPY**

***Instructions:***

- *You will handwrite this assignment. Ensure to include group and adm. number on your paper*
- *Submission Deadline: Tuesday 14<sup>th</sup> August 2018, 5pm.*

**Question**

A network administrator has chosen the following class **B** address: 172.16.0.0/24. Assume that he would like create a network with 20 hosts per subnet.

- 1) How many bits should remain in the chosen address?
- 2) How many bits should he borrow?
- 3) How many subnets will be created in total?
- 4) How many usable host addresses will there be per subnet?
- 5) Draw a subnet chart to represent the scenario above. The chart's headings are as follows:

***Subnet No | Subnet Address | Usable Host Address Range | Broadcast Address***

- 6) Determine the new subnet mask for the subnets in the table above and write down in
  - a) Prefix(/slash) format
  - b) Binary format
  - c) Decimal format
- 7) Sketch a simple network topology to show how you would connect any two subnets from the scenario above. Use only 2 end devices to represent the **20** per subnet. On your diagram indicate the TCP/IP settings that you would configure on the various interfaces. Assume that you will require a single router and that each subnet will be connected on a single router LAN interface.

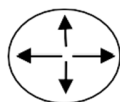
**Note:** *TCP/IP settings include:*

*IP address*

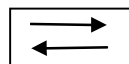
*Subnet Mask*

*Default Gateway Address (where applicable)*

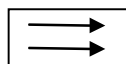
Use the symbols below for your sketch.



Router



Switch



Hub



Computer



Server



Network  
Printer



Straightthrough



Crossover



Serial WAN