Naam & Van *Name & Surname*	Ruben van der Merwe							
Studentenommer *Student Number*	2	6	9	7	8	7	1	7

CMPG315: Klastoets 2 / *Class Test 2* [30] (20)

2.1. **Bespreek die skepping van rame in die dataskakeling laag in detail. Baseer u bespreking op twee verskillende tegnieke wat gebruik kan word**

Discuss the creation of frames in the Data-link layer in detail. Base your discussion on two techniques that can be used. **(4)**

Tegniek / Technique	**Bespreking / Discussion**
Byte Count	When using byte count to create frames, the size of each frame is set exactly the same beforehand.
Flag Bits with Bit Stuffing	When using flag bits with bit stuffing, an additional bit is added to the data to indicate the start of each frame

✓ ✓ 2

2.2. **Bespreek die "Selective repeat" protokol (4). Noem ook die voordele (1) en nadele (1) daarvan.**

Discuss the "Selective repeat" protocol (4). Also mention its advantages (1) and disadvantages (1). **(6)**

~~Selective repeat~~ When using selective repeat, frames are sent from the ~~receiver~~ sender to the receiver, a when the receiver gets the frame, it sends back an acknowledgement attached to the frame it sends to the sender. If an error occurs, it sends a request that only frames with errors be re-sent later. ✓ An advantage of this is that no bandwidth is wasted on errors. ✓ A disadvantage is that frames may not always be in the correct order. ✓ 2

(4)

2.3. Beskryf die drie CMSA/CD-protokolle. *Describe the three CMSA/CD protocols.* **(6)**

Protokol / Protocol	Beskrywing / Description
0-persistant ✓	A 0-persistant protocol keeps sensing if a channel is idle before it sends a frame. ✗
1-persistant ✓	A 1-persistant protocol waits a random time between sensing if a channel is idle. ✗
p-persistant ✓	A p-persistant protocol waits until it is in a valid time slot, and calculates the propability of successfully sending a frame before it sends a frame. ✓

2.4. In watter OSI-vlakke funksioneer elk van die netwerktoestelle in die tabel hieronder? *In which OSI levels do each of the network devices in the table below function?* **(2)**

Toestel/ *Device*	Laag / *Layer*
Switch	Data-link layer ✓
Hub	Physical layer ✓

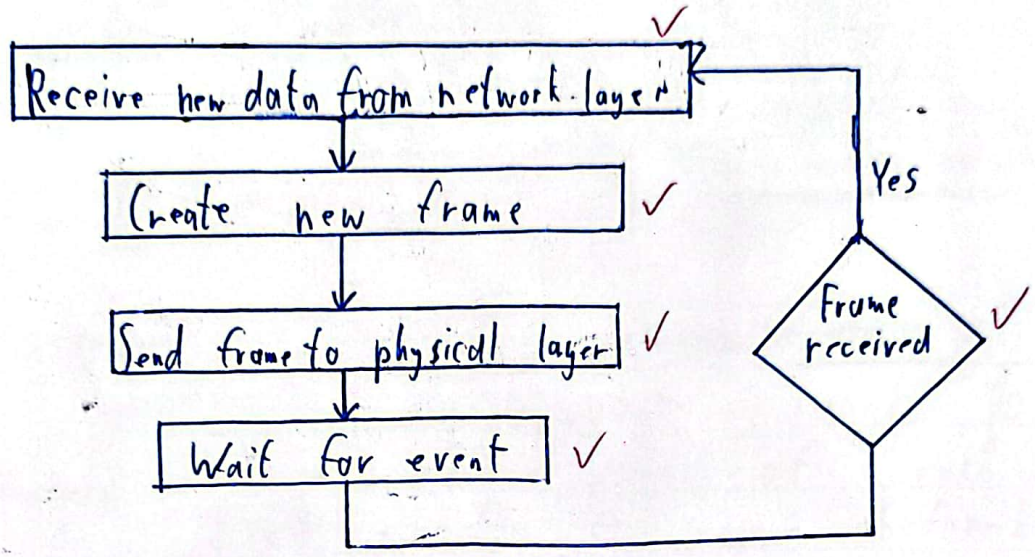
2.5. Watter kabels sal vir die volgende situasies die beste werk? Gee die name en motiveer jou antwoorde: *Which cables will work the best for the following situations? Provide the names and motivate your answers:*

Vinnige Ethernet, 95m afstand, koste is nie relevant nie: / *Fast Ethernet, 95m distance, cost is no issue:* **(2)**

Coaxial, because twisted pair would not be fast enough, and fibre would be wasted at such a short distance ✗

2.3. Gebruik 'n vloeidiagram om 'n simpleks stop-en-wag protokol vir 'n perfekte kanaal sonder ruis te beskryf. *Use a **flow diagram** to describe a simplex **stop-and-wait** protocol for a **perfect** channel without noise.* **(10)**

Sender



Onvanger/ *Receiver*