SL Unit 3 – Networks

Quiz 3

Question 1			
Objectives:	3.1.6	Exam Reference:	May-14 9

Define the term *data packet*. [2]

unit of data for transmission;
With a format;
Accept answers that expresses the idea that the packet is the fundamental unit of data transmission on a network (IP is assumed).
Accept answers that suggest the student understands there is a format for the packet, including "contains address and data".

Question 2			
Objectives:	3.1.8	Exam Reference:	May-14 10

Explain why the speed of data transmission across a network can vary. [3]

*Award up to **[2 marks max]** for identifying causes of speed differences*.
Different parts of network use different media;
Network congestion;
Packets may take different routes;
The receiver may be busy;
Physical size of the network;

*Award the final **[1 mark]** for any explanation of a cause may affect the speed.*
Fiber is faster than coax;
Some packets may be delayed by congestion;
There may be longer transmission times over large distances;

Question 3			
Objectives:		Exam Reference:	May-17 6

Identify any **two** of the layers of the OSI model. [2]

*Award up to **[2 max]** for any two of the following:*
Physical layer;
Data link layer;
Network layer;
Transport layer;
Session layer;
Presentation layer;
Application layer;

Question 4			
Objectives:	3.1.7, 3.1.11	Exam Reference:	May-17 13.b.c

A multinational business requires secure communication between its offices in different countries. The business's salesforce also needs secure remote access, as they travel the world.

Packet switching is used for sending data over the internet.

(a) Discuss the importance of protocols in ensuring the successful preparation, transmission and delivery of data using packet switching. [6]

Award marks as follows:
***[2]** marks for a clear understanding of protocols and packet switching*
***[2]** marks for explaining the importance of protocols in construction of packets/standard packet format with examples of information included in each packet*
***[2]** marks for a discussion of the role of protocols in the routing of packets to their destination*

For example:
Packet switching involves splitting data into packets to transmit to a specific destination;
Protocols are rules/standards used to compile and transmit each packet in a standard format;

Essential that all packets are constructed exactly the same;
So that the receiver knows automatically how to decode the contents/does not need further instructions for decoding the packets;
Error checking methods included to verify that data arrives in same state as it was sent;

Protocols include destination information that means that at each node the packet passes through it is sent to the next node towards the correct destination;
Packet number essential to be included for reassembling at the other end as not all packets will arrive in order;

***Note:** Construction and transmission will not necessarily be separated but it should be clear that protocols are used to construct packets for successful transmission. Accept valid alternatives.*

(b) Describe **two** advantages to society of the increased availability of WiFi outside the home. [4]

*Award **[1]** for identifying a use of WIFI in public places and **[1]** for expanding the advantage, up to **[2 max]**.*

Mark 2 and 2

Social:
Keeping up to date when away from home/abroad/travelling/in hospital;
Can gain access to information such as email/social sites/sports results/ facetime family and friends from long distance/get your homework to do in cafe;

Business:
Working away from home (if you work from home);
Avoids missing important meetings if not present or travelling and not able to attend a meeting/ makes possible to work on documents;

Immediate information:
Access to public facilities; Make immediate payments/check local transport timetables/taxi (uber)/book restaurants;

Cost saving:
Convenience of mobile accessibility;
Without the cost incurring using a mobile network such as 3G/4G;

***Note:** Answers do not have to come from these categories but they should be used as a guide to avoid*