

### Question 22

a) Segment 1 - Microwave transmission should be used here as mobile phones transmit by way of radio waves so a form of cable transmission cannot be used, and the data is only travelling ~~in a straight line~~ to across town with no obvious obstacles to disrupt the signal.

Segment 2 - Satellite transmission should be used here as the data is being transmitted over a long distance (120 km) and microwave transmission is not an appropriate medium due to mountains which could interfere with their transmission as they can only transmit in a straight line. Objects such as mountains would obstruct the signal from reaching its target.

Segment 3 - Fibre optic cable as the data needs to be sent over a long distance and fibre optic cabling is already in place in most suburban areas. Other forms of ~~cable~~

transmission ~~would~~ such as radio and microwave wouldnt be appropriate as buildings and infrastructure will obstruct the signal.

Segment 4 - Cable transmission probably by co-axial cable would be appropriate for this section. Fibre optic cable could also be used but with the expense of fibre optic cable and the fact the data is only being sent a short distance, co-axial cable would suffice.

b) The use of mobile technology has many advantages for Jill. Being a travelling salesperson who is often out of the office, it allows her to continue her work and communicate with head office while she is away. The use of her mobile phone to transmit the data is also very convenient for Jill as she may not have access to a landline - line and this also allows for her to work while she is travelling. Telecommuting is also convenient for Jill in that she can send and receive data or log onto the head office network at any time

allowing her to complete work outside of business hours.

c) A copy of the data dictionary would help Jill by proving exact names of attributes used by the system. Without the correct field name Jill's queries won't work so a copy of the data dictionary would assist Jill greatly. For example: Jill wants to find more information on 'Shiraz' wines. She constructs the following query:

```
SELECT "Information" FROM "Wines" WHERE Variety = 'Shiraz'
```

However the field name 'Variety' is actually stored as 'type' on the office network, so her query would return no result.