

Engineering Studies

Section II (continued)

Marks

Question 16 — Telecommunication (15 marks)

- (a) (i) The telecommunications industry uses copper and fibre optics for transmission of data. State a different application for each of these materials, and explain, in terms of their properties, why they are used for this application. 4

Copper is used because copper is a good conductor of electricity.
Fibre optics are used to send message (e.g. sound, ~~data~~ ... etc.)

- (ii) Cold drawing is used to form copper into electrical wire. Describe TWO problems associated with the use of the process. Describe a subsequent process that will reduce these problems. 3

They are weak at the joints and they could ~~be~~ weld the joints together instead.

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Question 16 (continued)

- (b) Identify TWO technological changes in the telecommunications industry. 4
 Discuss the effects that these changes have had on society.

1. Cordless phones (mobiles) you can walk ^{almost} anywhere and people can still talk to you.

2. The new colour screens on mobile phones so now you can see the person you are talking to and talk to them at the same time.

- (c) (i) Describe the transmission of data from a mobile phone to another mobile phone. 2

When people talk it turns into a signal which is then sent to the gateway and then transmitted back to the other mobile phone.

- (ii) Explain the effect that mobile phone communications may have on other electronic systems. State TWO situations where this effect could endanger lives. 2

1. You should never use a mobile phone on ~~the~~ aircraft because it could disrupt their equipment and the aircraft could crash.

2. Never use a mobile phone at petrol stations because it could disrupt their equipment and could cause an explosion.

End of Question 16