

Higher Information Systems

2007P q.25c Expert Systems Social, Legal, Ethical Issues

c. The increased use of expert systems in the field of medicine has brought about many concerns regarding the social, legal and ethical implications associated with their use. For example, many people are concerned about the implications for an experienced doctor who decides to take a particular course of action without consulting an expert system when it is later shown that the expert system may have been able to provide a preferable alternative.

(i). Describe one legal implication that could arise from this situation.

(ii). Describe one ethical implication that could arise from this situation. **(2)**

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MBV Car Repairs operates a number of garages in the UK. The company uses a car fault diagnostic expert system to identify faults with car engines.

a. Describe **two** benefits to MBV Car Repairs of the use of this expert system. **(4)**

b. Describe **one** social implication of using this expert system. **(2)**

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CITYCAR is a small company selling small four wheel vehicles for city travellers to use throughout Scotland. Customers who purchase a vehicle are asked if they wish to purchase an extended service warranty. For the duration of its extended warranty, customers who have any problems with a vehicle purchased from CITYCAR can call out a service engineer. The service engineer will then arrange a suitable date and time to call at the customer's home to repair the vehicle.

The IT department at CITYCAR is developing a fault diagnosis expert system for use by the service engineers. The expert system will run on laptop computers that the service engineers can take to a customer's house when on a service call. The service engineer will be able to use the expert system to help identify the source of any fault. The expert system will also be able to provide guidance about any repairs that are needed.

a. Identify two benefits of developing an expert system for this purpose. **(2)**

b. Several of the service engineers who work for CITYCAR are concerned about what happens if the expert system misdiagnoses a fault in a vehicle and they then follow any inaccurate guidance that is subsequently provided by the expert system.

Who is responsible for any bad advice that is provided by an expert system? Justify your answer. **(2)**

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CallsforYou sell mobile telephones and call plans. The company recently introduced an expert system to assist customers in selecting the call plan to best suit their needs.

e. Anita uses the expert system and purchases the call plan recommended. After 3 months she discovers that although she does not use her phone any more than previously her bills are now consistently higher. Two of the people responsible for Anita having higher bills now may have been the programmer and/or Anita.

Describe how each of them may have caused the expert system to advise an apparently unsuitable call plan. **(6)**