Data Provided: None

The University Of Sheffield.

DEPARTMENT OF ELECTRONIC AND ELECTRICAL ENGINEERING

Spring Semester 2008-2009 (2 hours)

Professional Issues in Engineering 2

Answer **THREE** questions. **No marks will be awarded for solutions to a fourth question.** Solutions will be considered in the order that they are presented in the answer book. Trial answers will be ignored if they are clearly crossed out. **The numbers given after each section of a question indicate the relative weighting of that section.**

1.

a. Describe the difference between the *expression of an idea* and *an idea* in relation to copyright law, give an example of each, and state which is protected by copyright. **(3)**

b. **(i)** In relation to a computer program, list the three statutory rights given exclusively to the copyright owner. **(2)**

(ii) Why might a person executing a computer program without permission be in breach of copyright law? How is this scenario usually circumvented? **(2)**

c. Describe the difference between 'literal' and 'non-literal' copying. Describe the 3-step test applied in *Computer Associates International v Altai (1992)* and state to which type of copying it is relevant. **(5)**

d. Mr Davies worked for a small company called WebNet Ltd (WNL) as a website designer. One of his duties was to re-format data for one of the company's clients. This was an extremely boring and repetitive task so during his lunch breaks Mr Davies wrote a program to automate the task. He never told his boss about the program as he wanted to use the time it saved him to chat to his friends on MyFace.

Mr Davies eventually left WNL to set up his own website design company, Davies Online Services (DOS). When he left he took with him the program he had written for automating data re-formating, and a list of WNL customers which he used to send out advertising material for his new company.

After Mr Davies left WNL, Mr Hughes, the owner of WNL found a copy of Mr Davies's program and decided to market it. Mr Hughes became aware, via a customer, that Mr Davies had taken a copy of WNL's customer list, and that he was still using the computer program.

Some time later, Mr Davies discovered that the program he had written was being marketed by WNL.

With direct reference to the Copyright, Designs and Patents Act 1988, comment fully on how the act protects the following items:

(i) The customer list from WNL **(4)**

(ii) Mr Davies's program **(4)**

You should state relevant parts of the act and discuss any relevant issues. If you think there has been a breach of the Act, outline the probable outcome of a resulting court case including what remedy would be appropriate.

2.

a. Mr Smith wishes to buy a new kitchen and so applies for a loan by filling in an application form to a company called KitchenCredit. The details on the form include his name, address (including post code), age, telephone number, profession, annual income and details of his other loans (both current and previous).

KitchenCredit send the application form by post to a data processing agency (DBC Associates) who use a computerised database system to process the application for the loan. DBC Associates produce a statement of Mr Smith's credit worthiness by applying a points system algorithm to his financial details, and recommend whether or not credit should be given. The report is printed out and returned to KitchenCredit.

Several areas of The Data Protection Act of 1998 are relevant in this context.

Discuss:

(i) the objectives of the Act.

(ii) the method of implementation of the Act.

(iii) the obligations of KitchenCredit under the Act.

(iv) the obligations of DBC Associates under the Act.

(v) the rights of Mr. Smith under the Act. **(14)**

b. The Data Protection Act draws a distinction between 'Personal Data' and 'Sensitive Data'. Give two examples of Sensitive Data and state how it is treated differently under the Act. **(3)**

c. A Commissioner is appointed to oversee the Act. State three of his/her main responsibilities. **(3)**

3.

a. The IET (formerly known as the IEE) is the professional organisation which represents electronic and electrical engineers in the UK. Amongst its many roles, describe very briefly six activities that the IET undertakes. **(6)**

b. After graduating from an MEng degree in Electronic and Electrical Engineering, there are several further requirements before a qualified Engineer can apply for the title of Chartered Engineer. Usually this will involve constructing a personal development plan, often with the aid of a mentor, so that certain non-academic skills and competences can be developed in the working environment. Give two examples of competences which an Engineer may be expected to develop after graduating. **(2)**

c. After twenty years of service with a company called Beta Phi Electronics Ltd (BPE) Mr Green, a Chartered Engineer, is promoted to Chief Electronics Engineer (CEE). His field of expertise is mainly associated with power supplies but he has a good working knowledge of all of the processes in which BPE is involved, having spent many hours on the shop floor as an apprentice. BPE is not doing well financially so Mr Green decides to make a number of changes in an attempt to save the company money and increase efficiency.

With reference to your knowledge of the Rules of Conduct for members of the IET comment on each of the following decisions made by Mr Green:

(i) To reduce the time needed in recruitment, Mr Green, after ringing around a number of friends for recommendations, takes on several engineers and makes them responsible for their own production sections and their own actions. After an approach from a customer, one of the new employees asks the CEE for an opinion on the machining of Lithium Niobate. Mr Green copies a report from the files, which he thinks may be relevant, and asks the manager if he would like to send it on to the customer. **(5)**

(ii) To speed up the supply of goods into the factory the CEE visits several suppliers, one of which (Whites) offers to give BPE priority if the CEE will advise them on an air conditioning problem and if he agrees that BPE will not deal with Blacks, a rival firm. The relationship is fruitful and Whites gain a patent based upon the advice of the CEE to whom they give a 2% interest. **(5)**

(iii) To save costs, Mr Green cancels the training program for all of the factory's engineers and asks them to make their own arrangements. He states that neither he nor they should have this time available to waste. **(2)**

4.

a. Outline in your own words the five steps an employer should make to assess risks associated with current Health and Safety legislation in the UK. **(5)**

b. Mr Clarkson is a Chartered Electrical Engineer who works as an independent consultant. He is approached by a small company, Fuel Dispenses Ltd. (FDL), which makes refuelling rigs for racing cars. These are custom made devices which allow very large quantities of fuel to be transferred to the car in a very short period of time.

To save time in pit-stops FDL have designed a new interface for their rig. The rig is controlled automatically by an electronic safety circuit which ensures there is a perfect seal between the rig and the car before the fuel is allowed to flow, hence avoiding the possibility of the fuel leaking onto a hot engine, igniting, and seriously injuring the driver or the pit crew. There are several other safety features, all of which have to be monitored and controlled by the electronic safety circuit.

FDL have asked Mr Clarkson to design all the safety circuitry in the new fuel rig. They tell him that they have drawn up a contract which specifies the system and describes what they expect Mr Clarkson to do. The contract has certain sections.

For each heading listed below, describe what you think Mr Clarkson would be expect to find under this section of the contract:

(i) Definitions **(2)**

(ii) Assignments **(2)**

(iii) Termination **(2)**

(iv) Confidentiality **(2)**

c. When he finally receives the contract, Mr Clarkson is not happy. He imagines that if he designs the circuit with a fault in it which he does not notice, and as a result somebody somewhere in the world using one of new fuel rigs gets injured or possibly killed as a result of the failure of the safety system, he might be held responsible. Comment on the legal and professional position of Mr Clarkson. **(3)**

d. Mr Clarkson re-writes the proposed contract, including the following modification:

'Mr Clarkson will not accept any liability for any financial loss, injury or death that occurs as a result of any error in the design or implementation of the safety system provided under the terms of this contract'

Comment on whether you think the above clause will indeed protect Mr Clarkson from any error he accidentally builds into the electronic control device. **(2)**

e. If you were advising Mr Clarkson, what other precautions would you suggest that he should take under these circumstances? **(2)**

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