



The  
University  
Of  
Sheffield.

**DEPARTMENT OF ELECTRONIC AND ELECTRICAL ENGINEERING**

**Spring Semester 2011-12 (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. For each of the types of intellectual property listed below, explain briefly in what commercial circumstances they would apply, and how you would go about securing your formal ownership of the property in law.

- (i) Confidentiality (2)
- (ii) Copyright (2)
- (iii) Patent (2)
- (iv) Passing off (2)

- b. Peter Smart works for a company called ModSys Ltd. He is employed to design the logic circuits used in a variety of domestic products, such as washing machines, baby-feeding utensils, refrigerators and microwave ovens.

Peter's wife has recently given birth to a baby. He quickly realises that most disposable nappies (diapers) have certain design faults which result in unpleasant leakages. One weekend, he sits down and designs a new type of paper nappy. His design is not perfect because he does not have access to special sorts of absorbent papers which are used in commercial nappies. However, he quickly realises that by using a certain new way of folding and gluing his prototype nappy he can greatly improve on the performance of the existing, commercially-available nappies.

Imagine that you are Peter's friend, and that Peter has no knowledge of intellectual property rights. Peter comes to you and asks advice about how he should proceed with his idea.

- (i) Do you think Peter should tell his employer about his idea? Briefly outline your reasoning. (3)
- (ii) What would you advise Peter to do next in order to secure his ownership of his idea? (2)
- (iii) From what sort of professional would Peter be able to obtain advice and help in these circumstances? (1)
- (iv) What would you advise him are the main commercial strategies for exploiting his idea? Choose one of these strategies and then outline how you would advise him to proceed. What precautions should he take to ensure that people he may need to talk to do not run off with his ideas? (6)

2.

- a. In a court of law, the fact that a piece of information has about it the 'quality of confidence' must satisfy four tests. What are those tests? (4)
- b. What does the term 'liquidated damages' mean in the context of a confidentiality agreement? What legal restrictions are placed on such damages? (2)
- c. Two companies, Advanced Aerial Solutions Ltd (AASL) and XYANT plc enter upon a confidentiality agreement concerning some consultancy work that AASL is going to undertake for XYANT plc. The work concerns modifications to mobile phone aerial masts. To undertake the work, AASL will receive detailed schematic diagrams of some of the most commercially sensitive information owned by XYANT plc. **Excluding** liquidated damages, suggest **three** areas of concern that might be covered in such an agreement. (3)
- d. Richard Biggles is a junior consultant working for AASL. One Friday evening he attends a dinner party. Apart from the host, he does not know anyone at the party. He begins talking to man called Clive, at first about cricket and then about recent holidays.

Clive then asks what Richard does for a living. By this stage of the evening Richard has drunk a lot of wine. Prompted by Clive, he begins to talk very enthusiastically about a project he is currently working on (the work with XYANT plc). Clive seems quite interested and continues quizzing Richard about the technology. Clive speaks as if he does not understand technical issues, but nevertheless he asks some very intelligent and probing questions. Clive leaves the party early.

Later in the evening, the host says to Richard: *"I'm glad to see you talked to Clive. After all, you must have a lot in common with him given that he works in the same field"*

*"Does he work in the same field?"* asks Richard. *"He didn't say anything about that to me! In fact, he seemed positively ignorant of anything to do with electrical engineering."*

*"Oh no,"* says the host, *"Surely he told you he's the chief engineer of Quadratic Aerials Ltd?"*

Richard realises he has made a terrible mistake. Quadratic Aerials Ltd is the main competitor of XYANT plc. He has accidentally revealed everything that he has been working on for his client to his client's main commercial competitor. Furthermore, he has explicitly signed a non-disclosure agreement in connection with this work.

- (i) Do you think anyone is at fault in this situation, either from a legal or professional point of view? (3)
- (ii) What do you think Richard should do next? Should he inform XYANT plc about his mistake? Should he contact Clive at Quadratic Aerials Ltd on Monday morning? Should he phone his boss? What do you think is the order of importance of these various courses of action? Explain your reasoning. (4)
- (iii) What legal remedies might be open to Richard's employer, AASL, under these circumstances? In the present situation, would any of these remedies be of any practical value? (4)

3.

a. Give two examples where Health and Safety law would apply in an office environment. (2)

b. The law specifies that a company should undertake a risk assessment of possible hazards in the working environment and then take certain actions to ensure that such risks are minimised. Give an account of the steps that would usually be involved in such a process. (8)

c. Susan Hill, a Chartered Engineer, is employed in a company, STAFIX, which manufactures, amongst other products, electrically powered staple guns. These are used in a variety of industries, including the furniture industry where they are used to pin leather and other soft materials to the wooden framework of chairs. Sharp staples are ejected from the guns at high velocity via an electromagnetic actuator.

Susan is employed in a different part of the company, but one day visits the staple gun manufacturing line. One of the workers in the quality control section has a bandage on his hand. Susan discovers that this has been caused by one of the finished staple guns firing accidentally while it was being tested. She further discovers that this misfiring happens relatively often, is unpredictable, and is caused by an oversensitive trigger mechanism. This fault is regarded as 'normal': even guns that misfire during routine testing are passed as fully operational. The production manager, Mr Lake (who is also a Chartered Engineer and is also the company's Health and Safety officer), informs her that this is acceptable because a more reliable trigger would be far too expensive in view of the overall value of the retail price of the gun. Furthermore, the guns are only sold under contract to other manufacturers who should be aware of this issue. They are not sold to members of the public.

(i) In view of the above, discuss briefly the legal position of STAFIX, Susan and Mr Lake. (4)

(ii) Could there be a clause in the commercial contract between STAFIX and the other manufacturers they sell the guns to which would protect STAFIX from any legal action resulting from the guns misfiring and injuring people? Explain your reasoning. (2)

(iii) Describe any professional issues relating to the IET Rules of Conduct that you think would apply to the behaviour of Susan and Mr Lake in connection with the above scenario. (4)

- 4.
- a. Explain the terms ‘Data Controller’, ‘Data Processor’ and ‘Data subject’ in the context of the Data Protection Act. (3)
  - b. Give two examples of the duties of the Information Commissioner. (2)
  - c. Matthew Cliff is in the final year of his MEng degree at the University of Sheffield. In all previous years he has done extremely well academically and he anticipates that he will easily obtain a first class honours degree. He is beginning to consider possible job opportunities and decides to submit his personal details to a website called A1Engineers.com. This requires him to answer a long series of questions. Some of these are purely factual, such as “*have you ever worked as an independent consultant?*” Other questions are more personal, such as “*Do you agree that it is wrong to put your work commitments ahead of your family commitments?*” From all of these data, A1Engineers.com aim to match Matthew with potential employers who are also registered with A1Engineers.com. In fact, A1Engineers do not undertake the matching process themselves. Instead, they pass the data on to a specialist company called MatchEng Ltd which uses special in-house algorithms to match the job applicants with available job vacancies.
    - (i) In the context of the Data Protection Act (DPA), what are Matthew’s rights with respect to his personal data held by A1Engineers? (3)
    - (ii) In relation to this data, outline briefly the obligations of A1Engineers and MatchEng under the Data Protection Act. (7)
  - d. Matthew aims eventually to become a Chartered Engineer. He is aware that in addition to passing his exams and obtaining a job, he must continue to develop certain skills.
    - (i) Give three examples of the type of activities that would count as ‘*continuing development*’ in this context. (3)
    - (ii) Give some indication of how he would persuade the Institution of Engineering and Technology (IET) that he had accomplished this development? (2)

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