



**UNIVERSITY OF COLOMBO, SRI LANKA**



**UCSC UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING**

**DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)**

**Academic Year 2013/2014 – 3<sup>rd</sup> Year Examination – Semester 5**

***IT5104 - Professional Issues in IT***

***Structured Question Paper***

**08<sup>th</sup> March, 2014  
(TWO HOURS)**

**To be completed by the candidate**

BIT Examination Index No:

**Important Instructions:**

- The duration of the paper is **2 (two) hours**.
- The medium of instruction and questions is English.
- This paper has **4 questions** and **16 pages**.
- **Answer all questions.**
- All Questions carry equal marks.
- **Write your answers** in English using the space provided **in this question paper**.
- Do not tear off any part of this answer book.
- Under no circumstances may this book, used or unused, be removed from the Examination Hall by a candidate.
- Note that questions appear on both sides of the paper.  
If a page is not printed, please inform the supervisor immediately.

**Questions Answered**

Indicate by a cross (x), (e.g. ☐) the numbers of the questions answered.

	Question numbers			
	1	2	3	4
<b><u>To be completed by the candidate by marking a cross (x).</u></b>				
To be completed by the examiners:				

**CASE STUDY 1****The Archaeology Data Service (ADS) / Arts and Humanities Data Service Centre for Archaeology (AHDS Archaeology)****The Terms of Use and Access to ADS/AHDS Resources**

The Archaeology Data Service (ADS) / Arts and Humanities Data Service Centre for Archaeology (AHDS Archaeology) supports research, learning and teaching in archaeology in the UK by promoting good practice in the use of IT, by preserving important digital research archives for the long term, and by making a large amount of data available online. Their online catalogue of archaeological resources, provides details of some 600,000 sites, monuments and research projects in the UK and wherever UK-based archaeologists work. In many cases, short descriptive records provide access to rich and detailed archives that may contain any form of digital object associated with archaeological research. Archives include very large quantities of text - theses, monographs and journal articles in digital form - as well as unpublished 'grey literature'. They include database files, images, CAD plans, geophysical and topographic survey, virtual realities, animations and statistical data. The vast majority of this data is supplied to ADS by external agencies or individuals who license ADS to distribute and preserve data on their behalf.

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- 1) (a) There are several different rights that relate to intellectual property. Outline the main rights that can be used to protect different aspects of a software or an information system.

(03 marks)

**ANSWER IN THIS BOX**

Copyright, Patents,

Confidential information,

Trade marks &amp; Passing Off, Domain names.

*[Pages 162-174 of Ref 1]*

- (b) Explain the measures undertaken by ADS/AHDS to protect the Copyright of the digital research archives and the large amount of data available online through their catalogue of archaeological resources amounting to some 600,000 sites, monuments and research projects in the UK and wherever UK-based archaeologists work.

(10 marks)

**ANSWER IN THIS BOX**

*This is an open ended question & answers can vary but the following underlined points may be acceptable:*

Protection of Copyright

The vast majority of the data is supplied to ADS by external agencies or individuals who license ADS to distribute and preserve data on their behalf.

ADS can distribute data, and has provision for digital preservation but does not possess ownership of copyright.

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*Continued...*

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**The data should only be used for teaching, learning, and research purposes.**

- (c) According to the Intellectual Property Act, No. 36 of 2003 Part II of the Parliament of The Democratic Socialist Republic of Sri Lanka, an owner of copyright of a work shall have the exclusive economic and moral right to carry out or to authorize certain acts in relation to the copyrighted work. Outline 3 economic rights and 2 moral rights of the copyright owner described in the above act.

(05 marks)

**ANSWER IN THIS BOX****Economic rights (any 3)**

- reproduction of the work;
- translation of the work;
- adaptation, arrangement or other transformation of the work;
- the public distribution of the original and each copy of the work by sale, rental, export or otherwise;
- rental of the original or a copy of an audio visual work, a work embodied in a sound recording, a computer program, a data base or a musical work in the form of notation, irrespective of the ownership of the original or copy concerned;
- importation of copies of the work, (even where the imported copies were made with the authorization of the owner of the copyright);
- public display of the original or a copy of the work;
- public performance of the work;
- broadcasting of the work; and
- other communication to the public of the work.

*Continued...*

**Moral Rights (any 2).**

- to have his name indicated prominently on the copies and in connection with any public use of his work, as far as practicable;
- the right to use a pseudonym and not have his name indicated on the copies and in connection with any public use of his work;
- to object to any distortion, mutilation or other modification of, or other derogatory action in relation to, his work which would be prejudicial to his honour or reputation.

**[Ref 9]**

- (d) According to the Intellectual Property Act, No. 36 of 2003 Part II of the Parliament of The Democratic Socialist Republic of Sri Lanka, what would be the punishment for an Infringement of Copyright with respect to any person knowingly or having reasons to believe that he is in possession or has access to a computer program infringing the rights of another person, and wilfully makes use of such program for commercial gain?

**(05 marks)****ANSWER IN THIS BOX**

Person shall be guilty of an offence and shall be liable on conviction by a

Magistrate for a fine not exceeding rupees five hundred thousand or to

Imprisonment for a period of six months or to both such fine and imprisonment.

The Magistrate may, whether the alleged offender is convicted or not, order that all

copies of the work and all implements used for the infringement, in the possession

of the alleged offender, which appear to him to be infringing copies or implements

used for the purpose of making infringing copies, shall be destroyed or delivered

up to the owner of the right, or otherwise dealt with in such manner as the

Magistrate may think fit.

**[Ref 9]**

- (e) The Intellectual Property Act, No. 36 of 2003 Part II of the Parliament of The Democratic Socialist Republic of Sri Lanka under its copyright law outlines some purposes for which fair use may be made of such copyrighted material & will not be considered as an infringement. Name those purposes which can be described as fair use.

(02 marks)

**ANSWER IN THIS BOX**

purposes such as criticism, comment, news reporting,  
teaching (including multiple copies for classroom use),  
scholarship or research, shall not be an infringement of copyright.

**[Ref 9]**

- 2) (a) Outline the characteristics that are common to many professions.

(08 marks)

**ANSWER IN THIS BOX**

Substantial education and training are required in order to practice the profession;

The members of the profession themselves decide the nature of this training and,  
more generally, control entry to the profession;

The profession is organized into one or more professional bodies;

The profession lays down standards of conduct with which its members must  
comply and, where necessary, enforces these through disciplinary procedures.

**[Page 11, Ref 1]**

- (b) Explain why Software Development is considered as an Engineering discipline, but not Accountancy, Marketing & Consultancy?

(04 marks)

**ANSWER IN THIS BOX**

Engineering involves designing and building things that must work properly, that is, must meet a set of predetermined requirements concerning their functionality, their performance, and their reliability;

The process of designing and building the object must be completed within specified constraints of time & budget.

*[Page 13-14, Ref 1]*

- (c) Consider the quote “Compulsory registration of Software Engineers with a Professional Institute”. Do you think it is necessary or feasible? Explain your answer giving reasons for and against it.

(13 marks)

**ANSWER IN THIS BOX**

Lack of professionalism and professional incompetence on the part of software engineers can cause many disasters which cause avoidable deaths.

Dangers to the public arising from professional incompetence led to the idea of compulsory registration and appropriate qualification for software engineers that developed information systems.

This may not be feasible as the number of people qualified to register as software

*Continued...*



**engineers may be vastly fewer than the number of people developing software.**

**This may lead to the number of software being developed to be greatly reduced;**

**software development would go underground; Would create a monopoly among a small group with a specific qualification demanding higher wages;**

**It may be feasible to have such regulations for development of critical systems but the boundary between critical & non-critical systems is hazy. Moreover chartered software engineers may not have the specialized techniques needed to develop critical software.**

**[Page 18-19, Ref 1]**

**CASE STUDY 2**

A **rootkit** is a stealthy type of software, typically malicious, designed to hide the existence of certain processes or programs from normal methods of detection and enable continued privileged access to a computer.

A **Sony BMG Music CD** using rootkit technology introduced copy protection measures on about 22 million CDs without most consumers being aware of the consequences of rootkit technology. When inserted into a computer, the CDs automatically installed two pieces of software which provided a form of digital rights management (DRM) by modifying the operating system to interfere with CD copying. These programs could not be easily uninstalled, and they unintentionally created security holes that were exploited by unrelated malware such as worms or viruses. They constantly ran in the background and excessively consumed system resources, slowing down the user's computer, regardless of whether there is a protected CD playing or not. It employed unsafe procedures to start and stop, which led to system crashes. It had no uninstaller, and was installed in such a way that inexperienced attempts to uninstall it led to the operating system to fail to recognize existing drives.

One of the programs installed itself, even if the user refused its EULA (**end-user license agreement**), and it "phoned home" with reports on the user's private listening habits; the other was not mentioned in the EULA at all, contained code from several pieces of software in an apparent infringement of copyright, and configured the operating system to hide the software's existence, leading to both programs being characterized as rootkits.

Sony BMG initially denied that the rootkits were harmful. It then released, for one of the programs, an "uninstaller" that only un-hid the program, installed an additional software which could not be easily removed, collected an email address from the user, and introduced further security vulnerabilities.

Following public scandal, government investigations and class-action lawsuits in 2005 and 2006, Sony BMG partially addressed the scandal with consumer settlements, a recall of about 10% of the affected CDs, and the suspension of CD copy protection efforts in early 2007.

3) Answer the questions (a) and (b) using the scenario or CASE STUDY 2 given above.

(a). Explain the relevant aspects of the BCS Code of Conduct, that should have influenced your actions as a computing professional in designing/ implementing the above DRM & Copy Protection Software used in the SONYBMG Music CDs.

(15 marks)

<p><b><u>ANSWER IN THIS BOX</u></b></p> <hr/> <p><b>Not misrepresent or withhold information on the performance of products, systems</b></p> <hr/> <p><b>or services (unless lawfully bound by a duty of confidentiality not to disclose such</b></p> <hr/> <p><b>information), or take advantage of the lack of relevant knowledge or inexperience</b></p> <hr/> <p style="text-align: right;"><i>Continued...</i></p>
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of others.

Carry out your professional responsibilities with due care and diligence in accordance with the Relevant Authority's requirements whilst exercising your professional judgment at all times. If over-ruled, indicate likely risks.

Have due regard for the legitimate rights of Third Parties.

Ensure that you have the knowledge and understanding of Legislation\* and that you comply with such Legislation, in carrying out your professional responsibilities.

Avoid injuring others, their property, reputation, or employment by false or malicious or negligent action or inaction.

*[Ref 3: BCS Code of Conduct]*

- (b) Explain the relevant aspects of any legal consequences to SONY BMG that would occur when a customer installed a Music CD with copy protection or DRM software in his computer.

**(09 marks)**

**ANSWER IN THIS BOX**

According to the COMPUTER CRIME ACT, No. 24 OF 2007 of Sri Lanka the following are offences:

Causing a computer to perform a function without lawful authority is an offence.

The users were not made fully aware of the consequences of using the Sony

*Continued...*

**BMG CD on their computers.**

**Any person who, intentionally and without lawful authority causes a computer causes a computer to perform any function knowing or having reason to believe that such function will result in unauthorised modification or damage or potential damage to any computer or computer system or computer programme shall be guilty of an offence.**

**Illegal interception of data is an offence. One of the programs installed itself, even if the user refused its EULA (end-user license agreement), and it "phoned home" with reports on the user's private listening habits;**

**Sony BMG later released an "uninstaller" that only un-hid the offending program, and installed an additional software which collected an email address from the user unknown to the user.**

**The software installed by SONY BMG seems to contain other software which may have copyright issues.**

**Infringement of Copyright is a legal offence according to laws of many countries.**

**[Ref 2 & 9]**

- (c) What action can a member or a non-member of BCS take if he/she becomes aware of any breach of the Code of Conduct by another member/non-member of BCS?

(02 marks)

**ANSWER IN THIS BOX**

Notify the Institute

If a member is convicted of a criminal offence, the member, when asked will provide

a Standard Disclosure Certificate or other similar notice providing evidence of their criminal record (if any) within 28 days. Note that not all convictions are seen as relevant to membership in BCS and each case will be considered individually.

[Ref 3]

- 4) (a) Summarize the tasks expected to be undertaken by the human resource department to ensure that the organization has the relevant IT workforce that it needs.

(11 marks)

**ANSWER IN THIS BOX**

Ensuring that recruitment, selection and promotion procedures comply with anti-discrimination legislation;

Staff training and development;

Setting up and monitoring remuneration policy;

Administering dismissal and redundancy procedures;

Dealing with contracts of employment;

Workforce planning;

Administering grievance procedures;

Continued...

**Being aware of new legislation affecting employment rights and advising management of what the organization must do to comply with it;**

**Dealing with health and safety;**

**Administering consultative committees.**

***[Page 113 – Ref 1]***

(b) What are the reasons accepted by law as justification for staff dismissal?

**(04 marks)**

**ANSWER IN THIS BOX**

**Lack of capability;**

**Misconduct;**

**Breach of the law;**

**Redundancy.**

***[Pages 121,122 – Ref 1]***

(c) Write short notes on 5 selection techniques that may be used in making professional appointments.

(10 marks)

**ANSWER IN THIS BOX**

**A series of one-to-one interviews with senior management & senior technical staff:**

Reliable method, difficult to demonstrate that equal opportunities legislation has been complied with.

**Interview by a panel:**

Widely used in the public sector.

Tends to favour applicants who are smooth talkers.

The panel may contain incompetent people giving rise to bad appointments.

**Assessment of references:**

May lead to legal dangers such as job applicants suing for damages from those issuing the reference or employers suing for damages caused by misleading references.

**Psychometric tests: Three types:**

- Ability tests to measure the individual's ability in a general area, such as verbal or numerical skills.
- Aptitude tests: Measure a person's ability to learn a skill needed for a job.
- Personality tests: used to assess how they behave in their relationships with other people.

*Continued...*

**Situational assessment:**

**Applicants are put through various situations where their performance is observed and assessed by other participants in the situation.**

**It is an expensive technique.**

**Task assessment:**

**Applicants are asked to carry out some tasks that they will be required to do in the job.**

**Certain skills of a job may be assessed in this way but others may not.**

***[Pages 114 – 115 – Ref 1]***

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