



University of Colombo, Sri Lanka



University of Colombo School of Computing

BIT

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)

Academic Year 2024 — 3rd Year Examination — Semester 5

IT5206 — Professional Practice

Structured Question Paper
(2 Hours)

To be completed by the candidate

Index Number

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Important Instructions

- The duration of the paper is **2 hours**.
- The medium of instructions and questions is English. Students should answer in the medium of English language only.
- This paper has **4 questions on 12 pages**. Answer **all** questions.
- All questions carry **equal** marks.
- Write your answers **only on the space provided** on this question paper.
- Do not tear off any part of this question paper. Under no circumstances may this paper (or any part of this paper), 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 or part of a page is not printed, please inform the supervisor/invigilator immediately.
- Any electronic device capable of storing and retrieving text, including electronic dictionaries, smartwatches, and mobile phones, is not allowed.
- Calculators are **not allowed**.
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To be completed by
the examiners

1	
2	
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4	
Total	

Q1)

- a.) There are four (4) different kinds of commercial organizations based on the organization ownership type. List and describe the differences between these organization types.

(12 Marks)

Answer should be based on

Sole Traders
Partnerships
Cooperatives
Limited Companies

Explain the differences

A sole trader: an individual who runs their own business

A Partnership : A group of people carrying on a business with a view of making profits (and if the business is not a limited company)

Cooperatives: User-owned and user-controlled businesses formed to benefit a group of members

Companies can be limited or unlimited

In an unlimited company the shareholders are personally liable for all the company's debts

A limited company may be limited by shares or by guarantee

- b.) Briefly describe the two (2) most common models of structuring organizations.

(05 Marks)

Answer should be based on

Organic Model • The bureaucratic model • Matrix Management

Organic Model: Flexible workplace with a horizontal mode of communication

The bureaucratic model : Employees or members of an organization having specialized tasks or functions that only they can perform • Applicable to larger organizations or organizations that have more complex operations

Matrix Management: the most common form of this type of structure is managers, employees and groups are departmentalized based on their functions and on the products of their respective departments. individuals may be responsible to more than one manager

- c.) Describe four (4) ways of overcoming challenges faced by management teams in organizations.

(08 Marks)

Answer should be based on

Having effective conversations with staff

Addressing performance issues

Let employees leave

Make appropriate hiring choices

Manage conflicts within the team

Q2).

a.) Provide one (1) example each for Phishing, Smishing, and Vishing.

(06 Marks)

Answer should be based on

Phishing: Phishing is the act of fraudulently using email to try to get the recipient to reveal personal data.

Attacker send legitimate-looking emails urging the recipient to take action to avoid a negative consequence or to receive a reward.

Smishing is another variation of phishing that involves the use of texting. • People receive a legitimate-looking text message telling them to call a specific phone number or log on to a website.

Vishing, victims receive a voice-mail message telling them to call a phone number or access a website.

b.) Briefly describe the differences between Cyberattacks and Cybersecurity.

(05 Marks)

Answer should be based on

Cyberattacks

Any kind of malicious activity that attempts to collect, disrupt, deny, degrade, or destroy information system resources or the information itself

Cybersecurity is the collected set of technologies, processes, and procedures organizations use to protect their computing environments from damage and unauthorized data access perpetrated by cybercriminals or malicious insiders.

c.) Explain the role of an Internet Service Provider (ISP) in caching and hosting, highlighting the ethical considerations and professional practices involved.

(08 Marks)

Answer should be based on

Caching:

An ISP serving as a cache is exempt from liability for damage or other legal repercussions resulting from a transmission if it: 1. Does not modify the information; 2. Complies with conditions on access to the information; 3. Complies with any rules regarding the updating of the information, specified in a manner widely recognized and used by industry;

Does not interfere with the lawful use of technology, widely recognized and used by industry, to obtain data on the use of the information; 5. Acts quickly to remove or to disable access to the information he has stored upon obtaining actual knowledge of the fact that the information at the initial source of the transmission has been removed from the network, or access to it has been disabled, or that a court or an administrative authority has ordered such removal or disablement.

Hosting:

This role covers, when stores information provided by its customers. • ISP is not liable for damage or criminal sanctions provided that: 1. It was unaware that anything unlawful was taking

place 2. Where a claim for damages is made, it did not know anything that should have caused it to think that something unlawful might be going on 3. When it found out that that something unlawful was going on, it acted expeditiously to remove the information or to prevent access to it 4. The customer was not acting under the authority or the control of the service provider.

- d.) Some organizations rely on custom-made software. What elements need to be delivered with custom-made software?

(06 Marks)

Answer should be based on

1. Source code. 2. Command files for building the executable code from the source and for installing it. 3. Documentation of the design and of the code. 4. Reference manuals, training manuals and operations manuals. 5. Software tools to help maintain the code. 6. User training. 7. Training for the client's maintenance staff. 8. Test data and test results.

Q3).

- a.) Briefly describe four (4) different types of Intellectual Property (IP) rights. Provide one example for each IP type.

(08 Marks)

Explain Copyrights, Patents, Trade Secrets, Trademarks, Answer should be based on (or needs to cover similar)

Copyright, • Concerned with the right to copy something. • It may be a written document, a picture or photograph, a piece of music, a recording, or many other things, including a computer program. Patents • Primarily intended to protect inventions, by giving inventors a monopoly on exploiting their inventions for a certain period. Confidential information • Information that a person receives in circumstances that make it clear they must not pass it on. Trade marks • Identify the product of a particular manufacturer or supplier.

- b.) List down the two (2) key rights of an inventor during the temporary monopoly period.

(04 Marks)

Answer should be based on

Use the patent to monopolize the market

Excluding possible competitors by enforcing their patent.

Set a high price and make a nice profit.

Request money from others in return for a license to practice the invention. The licensing income then provides extra income. Licensing a patent can be a very lucrative business.

- c.) A copyright infringement occurs when someone does anything that is the sole property of the copyright owner without authorization. Briefly describe the two (2) types of copyright infringement.

(08 Marks)

Answer should be based on

Primary Infringement - takes place whenever any of the exclusive rights of the copyright owner is breached.

Secondary Infringement - occurs when primary infringement occurs in a business or commercial context.

Primary Infringement - Takes place whenever any of the exclusive rights of the copyright owner is breached. • It is a matter for the civil courts • A claim for damages and an injunction to refrain from the infringement are some remedies for this.

Secondary Infringement - Occurs when primary infringement occurs in a business or commercial context. • In the case of software it involves, • Trading in pirated software • Using pirated software within a business.

d.) Explain the purpose of a Non-Disclosure agreement.

(05 Marks)

Answer should be based on (or needs to cover similar)

A non-disclosure agreement (NDA) is a legally binding contract that protects sensitive information from being shared with third parties. The purpose of an NDA is to establish a confidential relationship between parties and ensure that information is only used for agreed-upon purposes.

Q4.

a.) Briefly explain the following:

(10 Marks)

- a. Liability of defective Software
- b. A Shrink-wrapped license
- c. Creative Commons
- d. Fair usage policy
- e. Non derivative work

Answer should be based on

Liability of defective software

the legal obligation of a software company to ensure that its products are free of defects that could harm users or cause financial losses

A shrink-wrapped license

is a software license agreement that's included in the packaging of a software product, and the user accepts by opening the packaging or installing the software

Creative Commons is a standardized set of licenses that cover artists worldwide. It allows creators to set legal boundaries around public uses of their work, including copying, distribution, and use in designs. ◦ A major goal behind Creative Commons is to make sure that creators get the proper credit for their work.

Fair use is a legal doctrine that promotes freedom of expression by permitting the unlicensed use of copyrighted works in certain circumstances. Examples of activities that may qualify as fair use: ◦ Criticism ◦ Comment ◦ News reporting ◦ Teaching ◦ Scholarship ◦ Research.

A non-derivative work is a work that has not been adapted, modified, or transformed in any way. The term "non-derivative" can also refer to ideas that are new and not copied from something else.

b.) Explain the following roles which are discussed under the topic of Internet Issues

(10 Marks)

- a. A Black Hat Hacker
- b. A Cracker
- c. A Malicious insider
- d. A Cybercriminal
- e. A Hacktivist

Answer should be based on

Black hat hacker

Who violates computer or Internet security maliciously or for illegal personal gain. White hat hacker is someone who has been hired by an organization to test the security of its information systems

Cracker

Who causes problems, steals data, and corrupts systems

Malicious insider

An employee or contractor who attempts to gain financially and/or disrupt a company's information systems and business operations

Cybercriminal

Who attacks a computer system or network for financial gain

Hacktivist

Who hacks computers or websites in an attempt to promote a political ideology

c.) Briefly describe how a DDoS attack can take place.

(5 Marks)

Answer should be based on

A distributed denial-of-service attack is one in which a malicious hacker takes over computers via the Internet and causes them to flood a target site with demands. • It does not involve infiltration of the targeted system. Instead, it keeps the target so busy responding to a stream of automated requests that legitimate users cannot get in. • In a DDoS attack, a tiny program is downloaded surreptitiously from the attacker's computer to dozens, hundreds, or even thousands of computers all over the world.

DDoS stands for Distributed Denial-of-Service, and it's a cybercrime where an attacker floods a server with internet traffic to prevent users from accessing online services and sites.

A Distributed Denial-of-Service (DDoS) attack is carried out by flooding a target with malicious traffic, making it unable to respond to legitimate requests.

Explain some steps involved in a DDoS attack:

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