

**HNDIT2403/IT4003 - Professional Issues in IT/IT and Society**  
**Possible answers**

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**Question 01**

I. List three new developments in **Health field** due to Information Technology

**(Any three possible answers)**

- Magnetic Resonance Imaging (MRI) - photographs of internal human organs taken at different dimensions
- Computer Axial Tomography (CAT) - 3D photographs using X-Ray technology
- EEG or Electroencephalograph - detect malfunctions in the brain
- Telemedicine - doctor and patients are in different locations
- E- channelling
- Personalized Medicine
- Cancer Immunotherapy
- Augmented Reality & Virtual Reality
- Robotic Surgery.

II. How does Information Technology help collaboration?

**(Any four points)**

- Wikipedia, the online, collaborative encyclopaedia
- Open Directory Project (ODP)
- Collaboration between scientists in different states or countries
- Watch-dogs on the Web
- Social media
- Online meeting / conferencing
- Resource sharing through network

III. What are the positive effects of Computer Technology?

**(You have to write six points for 6 marks)**

- Prices of food are down
- Raw materials are abundant
- Real buying power is up
- Food supplies are growing faster
- Dramatic impact on life expectancy
- Assistive technologies benefit those with disabilities
- Improvements of different fields such as education, medicine, health, agriculture
- Tools & machines
- Research & innovations

IV. Write short notes for the following.

a. Plankalkul (1945)

- It means Plan Calculus
- First algorithmic programming language
- Created by Konrad Zuse
- Plankalkul allowed for better programming of computers

b. ENIAC (1946)

- Built by Jon Mauchly and J. Presper Eckert
- Machine was extremely large
- It ran 5,000 operations per second
- 1000 times the speed of other machines from the same period

c. Shakey (1970)

- First mobile robot with artificial intelligence
- Made by SRI International
- Used a problem-solving program called STRIPS
- The device was equipped with motion sensors, a TV camera, bump sensors, and a laser range finder

d. Computer Generated Special Effects (1982)

- Used for movie *Tron*
- It was the first movie to incorporate computers
- There were computer effects

- Computer animation formed roughly 30 minutes of the film

## Question 02

I. How does computer help the employer at their company?

(four possible answers)

- Reduce man power
- Reduce operation cost
- Not need a large office
- Allows work to continue after heavy rain, hurricanes
- Work from home
- Reduce transportation, work wear cost

II. Name two vulnerable viewers of the Web?

(two possible answers)

- Children
- Less educated individuals
- Elder people
- Technology unaware people

III. What is the **Telecommuting**? Discuss two benefits of the **Telecommuting**.

Working at **home** using a **computer** electronically **linked** to one's place of employment

Benefits:

- Employees are more productive, satisfied, and loyal
- Reduces traffic congestion, pollution, fuel use, and stress
- Reduces expenses for commuting (travelling) and money spent on work clothes

IV. Explain **Natural rights** ethical view.

- Theory of universal rights
- Those are seen as inherent in the nature of people
- Not dependent on human actions or beliefs

V. What are the **Exclusive rights** of a software according to *Intellectual Property Act No. 36 of 2003* in Sri Lanka?

- Right to copy
- Right to translate
- Right to adapt
- Right to distribute

VI. Discuss **Content Related Cybercrime** with three examples according to *Computer Crime Act 24 of 2007* in Sri Lanka.

(You have to describe this in brief)

It is related with Computers with **internet** used to distribute illegal data

Examples:

- Internet based pornography
- Internet based criminal
- Internet based copyright violation
- ransomware, phishing
- Social harassment

### Question 03

I. Fill in the blank using given word(s) below.

- ... **Anonymous**.... : speech is protected by supreme court principles and guidelines.
- ... **Children's Internet Protection Act of 2000**.... : Filters were used to block sites with specific words, phrases or images for protecting children.
- ... **Anti-spam Laws** .....: can control commercial spam e mails.
- ... **Internet Service Providers** ... in US and European countries must keep true identity of user online activities for preventing problems of anonymity.
- .... **De-regulation** .....: Flexibility and market incentives (motivating) will benefit customers.
- Copyrights, patents, marks, designs and ... **trade secrets** ... are intellectual property rights relevant to software.
- ... **National Intellectual Property Office of Sri Lanka** ..... protects for copyrights, patents, marks and industrial designs in Sri Lanka.

- h. ... **Economic rights** ..... and Moral rights are two forms of copy rights.
  - i. A patent is a ... **twenty years** .... exclusive monopoly on the right to make, use and sell a qualifying invention.
  - j. The Service mark is related to ... **Services** .....
- II. List five steps you could follow for preventing pain of the spine and neck when you would use the computer long time.
- Adjust height of the seat
  - Against to move into a sloping position (seat)
  - Adjustable arm supports of the seat
  - Feet should on the floor or foot rest
  - Back and neck should always be straight

#### Question 04

- I. Explain **Digital Divide**. State three suggestions for reducing the Digital Divide. The **gap** between demographics and regions that **have access** to modern information and communications technology, and those that **don't or have restricted** access

Suggestions:

- Industrialists provide low cost options
  - Government funds technology in schools
  - Non-profit organizations and huge computer companies are spreading computer access
  - Technological workshops
  - Equipment distribution
- II. What is **Brainstorming**? List three types of people who would participate with the brainstorming.
- Brainstorming is a method of generating ideas and share knowledge to solve a particular problem where participants are encouraged to think and share their ideas as a group.

People:

- System owner

- System user
- Systems Analyst
- Developer
- Any stakeholder or a person that is relevant

III. Why do computer professionals study failures and errors in computer systems?

State three factors for computer systems failure.

Because they learn how to avoid failure by experience and also to gain knowledge to overcome such before happening again.

Understand impact of poor work

Factors:

- Special cases of the system
- Overconfidence in the accuracy of data
- Errors in data entry
- Lack of responsibility for errors
- Problems in other systems and software
- Time allowed for development was insufficient
- Making significant changes of the system structure

IV. a. What are the majority usage of the *Silver Surfers* on the Web?

- Search engines
- Online shopping sites
- Social networking sites

b. Explain how *Silver Surfers* would reduce their depression level in the Internet?

- Skype - video / audio calls with others
- Facebook - touch with family members or close friends
- E mail - communicate with their family members or friends
- Instant messages - spending time

**Question 05**

I. Explain about **Secondary use** and **Data mining**.

Secondary use - use of personal information for a purpose other than the one it was provided for

Data mining - searching and analysing masses of data to find patterns and develop new **information** or knowledge

II. How do you apply **Informed consent** principle for health care provider and patient?

Informed consent is the process in which a health care provider educates a patient about the risks, benefits, and alternatives of a given procedure or intervention. The patient must be competent to make a voluntary decision about whether to undergo the procedure or intervention. Health care provider **discloses appropriate information** to a competent patient. Patient may make a voluntary choice to **accept** or **refuse** treatment.

III. What is the **Global Positioning Systems**? List three services of Global Positioning Systems.

Computer or communication services that know exactly where a person is at a particular time

Services:

- Location tracing
- Maps
- Traffic details

IV. How do professional bodies develop professional education programs?

- Perform professional certification
- Setting and assessing professional examinations
- Providing learning opportunities
- Publishing professional journals
- Conducting work shops
- Funding and scholarship programmes
- International training

- V. List three local and two international professional bodies (Abbreviations are not considered).

Local:

- Computer Society of Sri Lanka
- Institute of Management of Sri Lanka
- Institute of Chartered Accountants of Sri Lanka

International:

- Chartered Institute for IT
- Institute of Electrical and Electronics Engineers
- Association of Information Technology Professionals
- Information Systems Audit and Control Association
- Institute of Internal Auditors
- International Association of Medical Colleges
- Association of Accounting Technicians