

NT213 English for IT

Examination

Student \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student ID number \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***September 2021***

**Time** 1 hour 30 minutes

# Instructions to students

Do not open this question paper until you are told to do so.

**Write your name and ID number.**

Read the instructions for each part of the paper carefully.

Answer all the questions.

You mustcomplete the answer sheets within the time limit.

**INFORMATION FOR STUDENTS**

There are 60 questions in this paper.

Questions 1 – 20 carry 1 mark (Part 1, Part 2).

Questions 21 – 33 carry up to 2 marks (Part 3, Part 4).

Questions 34 – 40 carry 1 mark (Part 5).

Questions in Part 6 carry 10 marks (Part 6).

Part 1 Multiple-choice cloze

For questions **1 – 10**, read the text below and decide which answer **(A**, **B**, **C** or **D**) best fits each gap. There is an example at the beginning (**0**). Mark your answers **by circling the correct answer. (10 x 1 = 10 points)**

**Example:**

**0 A** networking Bprogramming **C** data communication **D** telecommunication

*Networking*

In the simplest explanation, 0 \_\_\_\_\_\_\_\_\_\_ is just computers talking to each other. They do this by sending data divided into 1 \_\_\_\_\_\_\_\_\_\_ which is then recombined by the computer or device that receives them. The Internet is a 2 \_\_\_\_\_\_\_\_\_\_ network. It refers to the ability of networking equipment to process packets independently from each other. It also means that packets can take different network paths to the same destination, so long as they all arrive at the destination.

Networks use various 3 \_\_\_\_\_\_\_\_\_\_ (an established set of rules that determine how data is transmitted between different devices in the same network) and transmission mediums such as ethernet cable (wired) or Wi-Fi connections (wireless). Computers must also know how to find other computers on the network. To put it briefly, every computer on the network needs a(n) 4 \_\_\_\_\_\_\_\_\_\_ which identifies the device’s host network and the location of the device on the hostnetwork so messages know where to go after they are sent.

5 \_\_\_\_\_\_\_\_\_\_ are virtual or physical devices that facilitate communications between different networks. They analyze information to determine the best way for data to reach its ultimate destination.

There are two types of network architecture. In 6 \_\_\_\_\_\_\_\_\_\_ architecture, two or more computers are connected in such a way that they have equal power and privileges on the network. This type of network does not require a central server for coordination. Instead, each computer on the network acts as both a client (a computer that needs to access a service) and a server (a computer that serves the needs of the client accessing a service). Each computer makes some of its resources available to the network, sharing storage, memory, bandwidth, and processing power.

In a 7 \_\_\_\_\_\_\_\_\_\_ network, a central server or group of servers manage resources and deliver services to client devices in the network. The clients in the network communicate with other clients through the server. Clients in this type of architecture don’t share their resources. This architecture type is sometimes called a tiered model because it's designed with multiple levels or tiers.

Geographic location often defines a computer network. Many people today have 8 \_\_\_\_\_\_\_\_\_\_ in their schools, offices, and even their homes which are especially good for sharing Internet access and commonly used files and databases.

Users can also connect to 9 \_\_\_\_\_\_\_\_\_\_, which are just large local area network spread out over several physical locations. The example of this type of network us basically the Internet itself, because it’s large and with each node on the network having its own unique IP address.

As you may have read in books or seen in movies, security considerations play a large role when designing networks. Technology such as 10 \_\_\_\_\_\_\_\_\_\_ can both block and filter unwanted network traffic. It monitors incoming and outgoing network traffic and decides whether to allow or block specific traffic based on a defined set of security rules. Virtual private networks (VPNs) are used to connect remote users to office networks without jeopardizing security. VPNs use strong data encryption to hide data as it is moving between routers over the Internet.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **A** files | **B** data packets | **C** lines of bits | **D** packet headers |
|  | **A** data switching | **B** message switching | **C** circuit switching | **D** packet switching |
|  | **A** standards | **B** ports | **C** protocols | **D** conventions |
|  | **A** IP address | **B** port | **C** destination | **D** protocol |
|  | **A** Nodes | **B** Routers | **C** Hubs | **D** Backbones |
|  | **A** Internet-based | **B** three-tier | **C** client/server | **D** peer-to-peer |
|  | **A** Internet-based | **B** three-tier | **C** client/server | **D** peer-to-peer |
|  | **A** LANs | **B** WANs | **C** MANs | **D** PANs |
|  | **A** LANs | **B** WANs | **C** MANs | **D** PANs |
|  | **A** firewalls | **B** IDS | **C** IPS | **D** antivirus |

# Part 2 Open cloze

For questions **1 – 10**, read the text below and think of the word which best fits each gap. Use only one or twowords in each gap. There is an example at the beginning (**0**). **(10 x 1 = 10 points)**

**Example: (0)** *has*

The Internet 0 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ changed everything. People can now carry out activities such as shopping, paying bills, etc. electronically; they can connect more easily with other interest groups anywhere in the world; they can research information 1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ leaving their homes or offices. Critics of this web-based lifestyle say it destroys face to face contact. In fact, the opposite should be true. The web broadens horizons, allowing access 2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ more people and a better quality of personal contact when that takes place. But what 3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ all this mean for business? First, business needs to understand the three basic changes 4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are taking place: most customer contact 5 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ be digital and self service from now on; customer service will become more important; and companies will adopt DNS internally. People’s roles in a company will also change 6 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ all levels. Not only will bosses need to be familiar with digital systems 7 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ middlemen will become more personalized service providers; lower-level employees will have a more interesting and active role due to digital access to information. One of the biggest challenges will be in getting a web infrastructure 8 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ place quickly and affordably, but competition will help.

Ways of managing projects will 9 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ change. Outsourcing or establishing specialized teams which can be disbanded 10 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a project has been completed will save on cost and enable things to be done more quickly. There is still some resistance to speed issues, but most is cultural. People are universally accepting the need to move more rapidly to satisfy demand.

# Part 3 Word formation

For questions **1 – 8**, read the text below. Use the word given in capitals at the end of some of the lines to form a word that fits in the gap **in the same line**. There is an example at the beginning (**0**). **(6 x 2 = 12 points)**

**Example: (0)** HIDDEN

|  |  |
| --- | --- |
| *Deep Learning at the Speed of Light*  Deep learning, which is to say artificial neural networks with many (0) \_\_ layers, is regularly stunning us with solutions to real-world problems. And it is doing that in more and more realms, including natural-language processing, fraud detection, image recognition, and (1) \_\_\_\_\_\_\_\_ driving. Indeed, these neural networks are getting better by the day.  But these advances come at an enormous price in the computing resources and energy they consume. So it’s no wonder that engineers and computer scientists are making huge efforts to figure out ways to train and run deep neural networks more (2) \_\_\_\_\_\_\_\_\_\_\_\_.  An (3) \_\_\_\_\_\_\_\_ new strategy that’s coming to the fore this year is to perform many of the required mathematical calculations using photons rather than electrons. In particular, one company, ­Lightmatter, will begin marketing late this year a neural-network accelerator chip that calculates with light. It will be a refinement of the prototype Mars chip that the company showed off at the virtual Hot Chips conference last August. The (4) \_\_\_\_\_\_\_\_ component in Lightmatter’s chip is a Mach-Zehnder interferometer. This optical device was jointly invented by Ludwig Mach and Ludwig Zehnder in the 1890s. But only recently have such optical devices been miniaturized to the point where large numbers of them can be integrated onto a chip and used to perform the matrix (5) \_\_\_\_\_\_\_\_ involved in neural-network calculations.  Keren Bergman, a professor of electrical engineering and the director of the Lightwave Research Laboratory at Columbia University, in New York City, explains that these feats have become possible only in the last few years because of the maturing of the manufacturing ecosystem for integrated photonics, needed to make photonic chips for communications. “What you would do on a bench 30 years ago, now they can put it all on a chip,” she says.  It’s clear, though, that the computing resources being dedicated to artificial-intelligence systems can’t keep growing at the current rate, doubling every three to four months. Engineers are now keen to harness integrated photonics to address this challenge with a new class of computing machines that are dramatically different from (6) \_\_\_\_\_\_\_\_ electronic chips yet are now practical to manufacture. Bergman boasts: “We have the ability to make devices that in the past could only be imagined.” | **HIDE**  **AUTOMATIC**  **EFFICIENT**  **AMBITION**  **FUND**  **MULTIPLY**  **CONVENE** |

Part 4 Key word transformations

For questions 1-6, complete the second sentence so that it has a similar meaning to the first sentence, using the word given. **Do not change the word given.** You must use between **three** and **eight** words, including the word given. Here is an example (**0**). **(6 x 2 = 12 points)**

**Example:**

**0** James would only speak to the head of department alone.

**ON**

James \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the head of department alone.

The gap can be filled with the words ‘insisted on speaking’, so you write:

**Example: 0** INSISTED ON SPEAKING

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| --- | --- |
|  | Please never ever interrupt me when I’m in a meeting.  **AM**  On no account \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when I’m in a meeting, |
|  | BlenderKit causes the keyboard to be locked without any reason.  **MAKES**  BlenderKit \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ locked without any reason. |
|  | Someone has suggested the change of the platform.  **THAT**  It \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the platform should be changed. |
|  | Although I tried hard, I couldn’t understand the lecture on relational databases.  **MIGHT**  Try \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, I couldn’t understand the lecture on relational databases. |
|  | I didn't have time so I didn't finish my project.  **WOULD**  If I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_the project. |
|  | If Marko hadn't helped, the meeting would have never been finished.  **HELP**  But \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the meeting would have never been finished. |

Part 5 Multiple Choice (Reading)

You are going to read a text about the information technology. For questions 1 – 6, choose the answer (A, B, C or D) which you think fits best according to the text. **(6 x 1 = 6 points)**

*Information Technology*

|  |
| --- |
| **What is information technology?**Information technology (IT) is the application of computers and internet to store, retrieve, transmit, and manipulate information, often in the context of a business or other enterprise. It is considered a subset of information and communications technology (ICT) and has evolved according to the needs.**Computers**It is worthwhile noting that the term it is commonly used as a synonym for computers and computer networks, but it also encompasses other information distribution technologies such as television and telephones. Several industries are associated with information technology, including computer hardware, software, electronics, semiconductors, internet, telecom equipment, engineering, healthcare, e-commerce, and computer services.Thanks to the continuous development of computers, the original computing systems became minicomputers and later personal computers took the lead. Nowadays, mobile phones are dethroning the personal computer and computing is evolving faster to become disembodied more like a cloud, becoming accessible more easily whenever needed. Information technology has transformed people and companies and has allowed digital technology to influence society and economy alike. It has, in this sense, shaped societies and adapted itself to people's needs.**History**If you want a brief history of information technology, here is one. Humans were the first "computers". Then, machines were invented to carry out the computational tasks. Now these machines have given way to new form of information technology. Information has become disembodied accessible from anywhere through cloud technology. Recent advances in IT are the consequence of the development in computing systems. Humans have been storing, retrieving, manipulating, and communicating information since the Sumerians in Mesopotamia developed writing in about 3000 BC, but the term information technology in its modern sense first appeared in a 1958 article published in the *Harvard Business Review*; authors Harold j. Leavitt and Thomas l. Whistler commented that "the new technology does not yet have a single established name. We shall call it information technology (IT)." Their definition consists of three categories: techniques for processing, the application of statistical and mathematical methods to decision-making, and the simulation of higher-order thinking through computer programs (that is, cognitive strategies that will enable people to think critically, make decisions, and solve problems).  Based on the storage and processing technologies employed, it is possible to distinguish four distinct phases of IT development: pre-mechanical (3000 BC – 1450 AD), mechanical (1450–1840), electromechanical (1840–1940) and electronic (1940–present). The phases that greatly affect our lives today involve the electromechanical period and the electronic phase. Nevertheless, there is still a need to observe and learn from the previous periods to appreciate the technologies enjoyed today. |

**1** Information technology is changing principally because of:

(a) the changing needs.

(b) new technological advances.

(c) business needs.

(d) the evolution in technology in general.

**2** According to the author the first computers were:

(a) calculators.

(b) minicomputers.

(c) cloud technology.

(d) humans.

**3** Development of information technology is the result of:

(a) the original computing systems.

(b) the development of machinery in general.

(c) the advances in computing systems.

(d) the dethroning of the personal computer.

**4** Computing systems are taking the form of clouds means:

(a) computers have become smaller.

(b) computing power are becoming disembodied.

(c) computers have become more personal.

(d) in-house computing is becoming accessible more easily.

**5** Circle the sentence that *is* ***not*** *true*.

(a) Leavitt and Whistler’s definition of IT comprises three categories.

(b) IT is considered as part of information and communication technology.

(c) The simulation of higher-order thinking through computer programs is about memorizing facts or retrieving information.

(d) IT includes not only computers and computer networks but also other information distribution technologies.

**6** Which of these statements about information technology *is true*?

(a) Personal computers later managed to get the position ahead of everything else in a computer race and are still the leading technology.

(b) There are three main periods in history that divide the era of ICT according to Leavitt and Whistler.

(c) People have been gathering information since the beginning of time under the umbrella term “information technology”.

(d) ICT has the power to transform society and is an important enabler of change.

Part 6 Writing

You have recently attended a week’s training course in a prestigious software development company and on your return you receive the following note from your teacher:

*Hope you enjoyed the training modules. We’re compiling a report to help us evaluate our Student Development programme. Please send me an outline of what you did on the course, which modules were the most useful and your opinion of how students would benefit from attending it in the future. Thanks.*

Your report should be between **220-260 words** long. Going over the limit is not penalized, but potentially leads to more mistakes. However, if your text is under 220 you will have points deducted from your overall score.

**(10 points)**

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***This is the end of your examination. Thank you***.