

**НАЦІОНАЛЬНИЙ ТЕХНІЧНИЙ УНІВЕРСИТЕТ УКРАЇНИ  
«КИЇВСЬКИЙ ПОЛІТЕХНІЧНИЙ ІНСТИТУТ»**

**АНГЛІЙСЬКА МОВА ПРОФЕСІЙНОГО СПРЯМУВАННЯ**

**Методичні вказівки**  
для самостійної підготовки студентів III курсу  
теплоенергетичного факультету  
**до виконання комплексних контрольних робіт**  
(електронне видання)

*Рекомендовано Вченою радою ФЛ НТУУ «КПІ»*

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Англійська мова професійного спрямування: Методичні вказівки для самостійної підготовки студентів III курсу теплоенергетичного факультету до виконання комплексних контрольних робіт [Електронний ресурс] / Л.М. Іванченко, Ю.В. Боєва, Д.С.Щипачова – К.: НТУУ «КПІ», 2013. – 97 с.

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Навчальне видання

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## Передмова

Методичні вказівки для самостійної підготовки студентів 3 курсу Теплоенергетичного факультету до виконання комплексних контрольних робіт з дисципліни «Іноземна мова професійного спрямування» розроблено відповідно до рекомендацій чинної навчальної програми, яка передбачає формування у студентів професійної мовної компетенції, необхідної для ефективної участі в процесі навчання та в різноманітних ситуаціях професійного спілкування.

Мета методичних вказівок – допомогти студентам підготуватися до написання комплексної контрольної роботи з англійської мови, ознайомитися зі структурою роботи, критеріями оцінювання та вимогами до рівня володіння іноземною мовою на кожному курсі. У методичних вказівках висвітлюються вимоги до знань студентів з різних видів мовленнєвої діяльності у межах кожного модуля, а також критерії оцінювання контрольної роботи залежно від типу завдання. Для студентів наводяться приклади варіантів комплексної контрольної роботи, що складається з шести завдань, які студенти можуть використовувати у підготовці до виконання контрольної роботи. Завдання комплексних контрольних робіт складено на базі вивченого матеріалу відповідно до робочих навчальних програм кредитних модулів з урахуванням специфіки факультету та спеціальностей. Методичні вказівки дозволять студентам організувати навчальну діяльність у режимі самостійної роботи, щоб краще закріпити свої знання з англійської мови та підготуватися до виконання комплексної контрольної роботи.

Для роботи з методичними вказівками студентам рекомендуються базові та додаткові підручники, запропоновані у робочій програмі курсу.

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## **Структура та критерії оцінювання комплексної контрольної роботи.**

### **Зразок листа відповіді**

#### **Структура комплексної контрольної роботи з англійської мови**

Пакет завдань комплексної контрольної роботи складається з 5 варіантів. Кожен варіант містить 6 завдань, серед яких завдання на розуміння тексту, на знання термінології, граматики та завдання на переклад з англійської на українську мови і навпаки. Контрольна робота пишеться на окремих листах-відповідях. Наведемо зразок такого листа відповіді.

### **НАЦІОНАЛЬНИЙ ТЕХНІЧНИЙ УНІВЕРСИТЕТ УКРАЇНИ**

#### **“Київський політехнічний інститут”**

### **КОМПЛЕКСНА КОНТРОЛЬНА РОБОТА**

з навчальної дисципліни

«Іноземна мова професійного спрямування»

(назва)

для студентів спеціальності (напрямку)

(код)

(назва)

Студент \_\_\_\_\_

(прізвище, ім'я та по батькові)

Теплоенергетичний факультет, курс, група \_\_\_\_\_

Початок роботи \_\_\_\_\_ год. \_\_\_\_\_ хв.

Завершення роботи \_\_\_\_\_ год. \_\_\_\_\_ хв.

## КРИТЕРІЇ ОЦІНКИ КОНТРОЛЬНИХ РОБІТ

Контрольні роботи оцінюються за шкалою 100 балів.

Перше завдання «Розуміння прочитаного тексту» складається з тексту та 5 речень і оцінюється наступним чином:

$$5 \text{ речень} \times 3 \text{ бали} = 15 \text{ балів.}$$

Друге завдання «Розуміння прочитаного тексту» складається з тексту та 5 питань і оцінюється наступним чином:

$$5 \text{ питань} \times 3 \text{ бали} = 15 \text{ балів.}$$

Третє завдання лексичного характеру має 5 питань, за кожне студент отримує по 4 бали.

$$10 \text{ питань} \times 4 \text{ бали} = 20 \text{ балів.}$$

Четверте завдання на перевірку знань з граматики складається з 10 питань, кожне оцінюється в 2 бали.

$$10 \text{ питань} \times 2 \text{ бали} = 20 \text{ балів.}$$

П'яте завдання – переклад речень з англійської на української мову. За переклад кожного речення студент отримує по 3 бали.

$$5 \text{ питань} \times 3 \text{ бали} = 15 \text{ балів.}$$

Шосте завдання – переклад речень з української на англійську мову. Кожне речення оцінюється в 3 бали.

$$5 \text{ питань} \times 3 \text{ бали} = 15 \text{ балів.}$$

Сума балів переводиться до оцінки згідно з таблицею.

Бали	Оцінка
100 ...90	відмінно
89 ...75	добре
74 ... 60	задовільно
менш ніж 60	незадовільно

**Зразок листа відповіді**

**3 YEAR – COMPUTING**

**Variant 1**

**I. Reading Comprehension**

***1. Read the text and decide whether the statements are true (T) or false (F). (15 points)***

1.	
2.	
3.	
4.	
5.	

***Total \_\_\_\_ / 15***

**2. Read the text and choose the correct answer to fill in the gaps. (15 points)**

1.	
2.	
3.	
4.	
5.	

***Total \_\_\_\_ / 15***

**3. Read the text and choose the word that fits each space. Circle the correct letter (A, B, C) for each sentence. (20 points)**

1.	
2.	
3.	
4.	
5.	

**Total \_\_\_\_ / 20**

**II. Grammar Comprehension (20 points)**

**Choose the answer that best fits each space. Circle the correct letter (a, b, c) for each sentence.**

1.	
2.	
3.	
4.	
5.	

**Total \_\_\_\_ / 20**

### III. Grammar in Use

**1. Translate the sentences from English into Ukrainian. Choose the correct variant (A, B, C) (15 points)**

1.	
2.	
3.	
4.	
5.	

**Total \_\_\_\_ / 15**

**2. Translate the sentences from Ukrainian into English. Choose the correct variant (A, B, C) (15 points)**

1.	
2.	
3.	
4.	
5.	

**Total \_\_\_\_ / 15**

**Total \_\_\_\_ / 100**

## **Вимоги до рівня володіння іноземною мовою з дисципліни «Іноземна мова професійного спрямування»**

Навчальна програма іноземної мови професійного спрямування надає студентам можливість розвивати мовну компетенцію і стратегії, які їм необхідні для ефективної участі в процесі навчання і в тих ситуаціях професійного спілкування, в яких вони можуть опинитися.

Загальною метою викладання та вивчення іноземної мови професійного спрямування є підготовка студентів до ефективної комунікації у їхньому академічному та професійному оточенні. Навчальна програма «Іноземна мова професійного спрямування» є професійно зорієнтованою, її зміст організовано відповідно до професійних умінь загального характеру, необхідних у різноманітних професійних сферах і ситуаціях. Ці вміння проявляються в різних типах мовленнєвої поведінки.

Велика увага приділяється самостійній роботі студента.

Розглянемо вимоги до знань студентів третього курсу.

Дисципліна “Іноземна мова професійного спрямування” для третього курсу складається з кредитного модуля:

3 курс – Іноземна мова професійного спрямування.

**Мета:** Підготовка студентів до ефективної комунікації у їхньому академічному та професійному оточенні. Комунікативні мовні компетенції будуть формуватись для адекватної поведінки в реальних ситуаціях академічного та професійного життя, які є загальними для студентів різних спеціальностей. Ці вміння проявляються в різних типах мовленнєвої поведінки.

Приділяється велика увага читанню та письму.

Студенти повинні розуміти:

- автентичні тексти, пов'язані з навчанням та спеціальністю, з підручників, популярних і спеціалізованих журналів та джерел з Інтернету;

- розуміти головні ідеї та знаходити необхідну інформацію в неадаптованій технічній літературі за фахом;
- вміння передбачати основну інформацію тексту за його заголовковою частиною та ілюстративним матеріалом, що супроводжує текст (прогнозуюче читання);
- здійснювати ознайомче читання неадаптованих технічних текстів для отримання інформації.

Студенти повинні вміти писати анотації до неадаптованих технічних текстів за фахом; писати реферати на основі автентичної технічної літератури за фахом; укладати термінологічні словники за фахом на базі автентичної технічної літератури за фахом.

## РОЗДІЛ 1.

### Комплексна контрольна робота для студентів 3 курсу

спеціальностей: 6.050601 Теплоенергетика, 6.050603 Атомна енергетика, 6.050604 Енергомашинобудування

#### Варіант 1.

##### I. Reading Comprehension

1. *Read the text and decide whether the statements are true (T) or false (F). (15 points)*

#### Hydraulic hybrids

Hydraulic hybrid vehicles, or HHVs, use pressurized fluid, instead of electric power as in electric hybrids, as an additional or alternative power source along with a conventional internal combustion engine (ICE) propulsion. The presence of the hydraulic powertrain is intended to achieve better fuel economy than a conventional vehicle. The differences hydraulic hybrids and electric hybrids is that hydraulic hybrids recover, or harvest, the vehicle's kinetic energy during braking and decelerating significantly more efficiently than electric systems; hydraulic hybrids can recover up to 75% of the vehicle's kinetic energy compared to 25% for electric hybrids, and for trucks and busses hydraulic systems can be less expensive than electric systems, because of the price of the amount of batteries required in these applications.

Hydraulic hybrid vehicle systems consists of four main components: the working fluid, reservoir, pump/motor (in parallel hybrid system) or in-wheel motors and pumps (in series hybrid system), and accumulator. In some system hydraulic transformer is also installed for converting output flow at any pressure with a very low power loss. In electric hybrid system, electrical power is stored in the battery and is delivered to the electric motor to power the vehicle. During braking the kinetic energy of the vehicle is used to charge the battery through the

regenerative braking. In hydraulic hybrid system, the pump/motor extracts the kinetic energy during braking to pump the working fluid from the reservoir to the accumulator. Working fluid is thus pressurized. When the vehicle accelerates, this pressurized working fluid provides energy to the pump/motor to power the vehicle.

In some cases hydraulic hybrid systems may be more cost-effective than electrical hybrid systems because no complicated or expensive materials (such as those required for batteries) are used. However, in most designs the pressure tanks of accumulators are made of carbon fiber that make the pressure tanks somewhat expensive, but the price of carbon fiber has been forecasted to drop and economies of scale can lower the cost of manufacturing the tanks.

Hydraulic hybrids recover, or harvest, the vehicle's kinetic energy during braking and decelerating significantly more efficiently than electric systems; hydraulic hybrids can recover up to 75% of the vehicle's kinetic energy compared to 25% for electric hybrids. Technical challenges with hydraulic hybrid vehicles include noise, size, and complexity.

1. Hydraulic systems for trucks and buses are cheaper than electric systems, because of the price of the internal combustion engine
2. In most designs the pressure tanks of accumulators are made of glass fiber that make the pressure tanks somewhat expensive
3. The existence of the hydraulic powertrain is intended to achieve better fuel economy
4. The most important problems with hydraulic vehicles are those of noise, size and complexity
5. During braking the kinetic energy is used to extract the battery through the regenerative breaking

2. *Read the text and choose the correct answer to the question.(15 points)*

### **4-stroke engine cycle**

A 'stroke' is the movement of the piston from 'top dead center' (TDC) to 'bottom dead center' (BDC), or the other way round, from BDC to TDC. A 4-stroke engine has four strokes. They are intake, compression, power, and exhaust.

A 4-stroke gasoline engine uses internal combustion, meaning that the heat that causes the air in the cylinder to expand is generated inside the cylinder. By comparison, a steam engine produces its heat in a furnace and boiler outside the engine cylinder so it is an external combustion engine.

The four strokes must include the five key events common to all internal combustion engines - Intake, Compression, Ignition, Power, & Exhaust.

Intake: Taking in air-fuel mixture.

The intake stroke starts with the exhaust valve closed, the inlet valve opening, and the piston at its highest point, top dead center. As it moves down, it increases the volume above the top of the piston. This makes pressure inside the cylinder lower than the pressure outside. This higher outside air pressure forces the air-fuel mixture into the cylinder. The piston reaches bottom dead center, the inlet valve closes, and the intake stroke ends.

Compression: Squeezing the air-fuel mixture into a smaller volume

Both intake and exhaust valves stay closed as the piston leaves bottom dead center. The piston moves up, squeezing the air-fuel mixture into a smaller and smaller volume, which compresses it. That causes the air/fuel charges temperature to rise, and that makes ignition easier and combustion (burning of fuel) more complete.

Ignition and Power: Burning the air-fuel mixture and forcing the piston down.

Just before the piston reaches top dead center, the next key event occurs -

ignition. The air-fuel mixture explodes and as it expands it pushes the piston down the cylinder. This is the Power stroke that drives the engine.

Exhaust: Getting rid of the burnt gases.

The piston now moves from bottom dead center to top dead center. The exhaust valve opens, and the piston pushes out the leftover gases. Remember, the intake valve is only open during the intake stroke, and the exhaust valve is only open during the exhaust stroke. Both are closed during the compression and power strokes.

1. A 4-stroke engine has four strokes:
  - a. compression, resistance, power, ignition
  - b. intake, power, compression
  - c. compression, power, intake, exhaust
2. A 4-stroke gasoline engine uses:
  - a. internal combustion
  - b. internal combustion engine
  - c. external combustion
3. The intake valve is only open during:
  - a. power and intake stroke
  - b. exhaust stroke
  - c. intake stroke
4. The process of ignition occurs:
  - a. before the piston reaches the top of the chamber
  - b. after the piston reaches the top dead center
  - c. before the piston reaches the top dead center
5. The process of compression means:
  - a. squeezing the air-fuel mixture
  - b. burning the air
  - c. taking in air-fuel mixture

3. *Read the text and choose the word that fits each space. Circle the correct letter (A, B, C) for each sentence. (20 points)*

The path to a career as a mechanical engineer begins with mathematics and (1)\_\_\_\_\_.

A high school student seeking to enter engineering school should have at least four years of mathematics and four years of science, all at the academic or college preparatory (2)\_\_\_\_\_.

(3)\_\_\_\_\_ classes should include algebra, geometry, trigonometry, computer science and some calculus. Science classes should include earth science, chemistry, biology and physics.

In addition, because engineers (4)\_\_\_\_\_ to be able to communicate their ideas effectively, engineering candidates should have four years of English, with particular emphasis on writing (5)\_\_\_\_\_. Other courses, such as mechanical drawing and industrial arts, will also help.

	A	B	C
1)	scientist	since	science
2)	grade	branch	level
3)	Math	more	most
4)	need	may	must
5)	branches	skills	sciences

## II. Grammar Comprehension

4. *Choose the answer that best fits each space. Circle the correct letter (a, b, c) for each sentence. (20 points)*

- The particle is sufficiently large \_\_\_\_\_ clearly discerned.
  - being
  - to be
  - been

2. The device was arranged in such a way as \_\_\_\_\_ two pictures.
  - a. had been produced
  - b. producing
  - c. to produce
3. This substance may easily \_\_\_\_\_ to be a compound.
  - a. to demonstrate
  - b. be demonstrated
  - c. demonstrated
4. The problems of synthesis \_\_\_\_\_ at the laboratory are of utmost interest.
  - a. attacked
  - b. attack
  - c. being attacked
5. Being invited too late Morrison \_\_\_\_\_ not go to the conference.
  - a. shall
  - b. can
  - c. could
6. Considered from this point of view the question \_\_\_\_\_ of great interest.
  - a. will be
  - b. could be
  - c. had been
7. Pupils \_\_\_\_\_ to use the school swimming pool free of charge.
  - a. are allowed
  - b. can
  - c. may
8. You \_\_\_\_\_ take a jacket. It's rather warm.
  - a. mustn't
  - b. needn't
  - c. haven't to
9. If he \_\_\_\_\_ so badly, well, the teacher wouldn't have punished him.

- a. didn't behave
- b. doesn't behave
- c. hadn't been behaving

10. If I should see her, I \_\_\_\_\_ ask her.

- a. will
- b. would
- c. will have

### III. Grammar in Use

**5. Translate the sentences from Ukrainian into English. Choose the correct variant (A, B, C) (15 points)**

1) Дефекти структури полімеру можна виявити за допомогою електронного мікроскопу.

- a) The defects in polymer structure has to be revealed by an electron microscope
- b) Imperfections in polymer structure could be revealed with an electron microscope
- c) Imperfections in polymer structure can be revealed with an electron microscope

2) Потрібно намагатися знизити температуру.

- a) Care must be taken to lower the temperature
- b) Care must be taken to have lowered the temperature
- c) Take care in lowering the temperature

3) Для того, щоб зрозуміти це явище, треба розглянути закони руху.

- a) (In order) to understand the phenomenon the laws of motion should be considered
- b) (In order) to understand the phenomenon the laws of resistance are considered

- c) The laws of motion have been considered while understanding this phenomenon
- 4) Ці хвилі є занадто короткими, щоб впливати на око.
- a) The waves are too narrow to perfect the eye
  - b) The waves are too short to affect the eye
  - c) The waves are long enough to induce the eye
- 5) Цей метод є недостатньо точним, щоб надати надійні результати.
- a) This method is not transparent enough to give available results
  - b) This method is accurate enough to get reliable results
  - c) This method is not accurate enough to give reliable results

**6. Translate the sentences from English into Ukrainian. Choose the correct variant (A, B, C). (15 points)**

1. The particle is sufficiently large to be clearly discerned.
- a. Ця частинка є недоречно великою, щоб її можна було одразу побачити.
  - b. Ця частинка є занадто великою, щоб її можна було чітко окреслити.
  - c. Ця частинка є достатньо великою, щоб її можна було чітко розрізнити.
2. The substance being investigated contained some admixtures.
- a. Досліджена речовина містила домішки.
  - b. Речовина, що досліджується, містить домішки.
  - c. Речовина, яка зараз досліджується, містить домішки.
3. The disadvantage of the device is that it is not easy to adjust.
- a. Перевага цього пристрою полягає в тому, що його не просто вмикати.
  - b. Недолік цього пристрою полягає в тому, що його легко встановлювати.
  - c. Недолік цього пристрою полягає в тому, що його нелегко налагоджувати.
4. What solvent is to be used should be decided by the experimenter.
- a. Експериментатор вже вирішив, який саме метод треба використати.
  - b. Експериментатор повинен вирішити, який саме розчинник треба

використовувати.

с. Який саме розчинник треба використовувати – це рішення, яке було прийнято в експерименті.

5. He used a substance appearing to induce X-rays.

а. Він використовував метод появи рентгенівських променів у речовині.

б. Він використовував речовину, яка, скоріш за все, генерувала рентгенівські промені.

с. Він звичайно генерував рентгенівські промені у будь-якій речовині.

## **Вариант 2.**

### **I. Reading Comprehension**

***1. Read the text and decide whether the statements are true (T) or false (F). (15 points)***

#### **The History of Robot Development**

Most early development of robotics comes from accounts written in antiquity. Aristotle wrote of the idea in 322 BC as a perfect measure to bring equality to civilization by removing the need for labor. An ancient Chinese tale recounts how an engineer named Yan Shi showed the emperor the inner workings of a human-shaped automaton. There are also records of wooden birds invented in Greece as a demonstration of automation and flight.

The first real automatons were developed in the Middle East. A golden tree with singing birds is alleged to have been in a Baghdad palace in the ninth and tenth centuries. However, the real innovations came from an inventor named Al-Jazari with his publication of the descriptions of building programmable humanoid robots in the "Book of Knowledge of Ingenious Devices" in 1206. He developed servants to work in water basins that offered soap and towels that were activated by water levels in the basin. He also created a robotic band that would float in a boat while singing and playing a beat that could be altered via pegs. His inventions were the first to utilize crankshafts and escapement wheel mechanisms.

Samuel Crompton introduced the Spinning Mule in 1779. It was a fully automated spinning wheel that could weave hundreds of threads at one time with no human power. This led to the introduction of a water-powered weaving machine in 1781 by Richard Arkwright. He built a factory around the invention and the idea of robotics in industry was born. The first usage of computerized robotics was done by General Motors in 1961 with Unimate, a robot that could perform tasks on the assembly line that were dangerous, mundane or too dirty for humans to perform. This changed the dynamics of the workplace and a new direction for labor as a guiding force in automation.

The impact of digital computing altered the future of robotics. Improved technologies combined with artificial intelligence allowed for a wider implementation of robots. The modern household has dozens of robots, from kitchen appliances like microwaves and toasters to the personal computer and the Roomba, a vacuum robot. Military, business and household implementation has continued at a dizzying pace during the late twentieth and early twenty-first centuries.

The influence of the entertainment industry on the development of robotics is present throughout history. The earliest automatons were developed at the behest of royalty. Leonardo Da Vinci created an automaton in the form of a knight in 1495 for the royal court that implemented a system of pulleys and gears to make the robot function. Fritz Lang's "Metropolis" was the first film to feature a robot, giving viewers their first look at the possibilities of a functioning automaton. Robots continued to be featured prominently in films and TV shows such as "Forbidden Planet," "Star Trek" and "Silent Running." "Star Wars" presented the world with a new look at robotics, influencing generations of inventors to move in the direction of humanoid automatons.

1. Yan Shi showed the emperor the inner workings of a human-shaped automation
2. In 1206 Yan Shi published the "Book of Knowledge of Ingenious Devices"
3. The robotics didn't change the dynamics of the workplace and introduced new conditions for labor
4. The influence of digital computing changed the future of robotics
5. "Star Trek" was the first film to feature the robot

**2. Read the text and choose the correct answer to the question. (15 points)**

**Advantages and Disadvantages of Electric Cars**

Electric cars are becoming increasingly more desirable, and overall they have more advantages than disadvantages.

**Advantages**

- The number one advantage of an electric vehicle is that no gas is required. One example is the Chevy Volt. It has a battery range of 40 miles. That means it can drive for 40 miles without using gas. 40 miles is more than the range of an average commute to work, so you can go to and from work using no gas. With minimal gas usage comes great savings. You do need gas in the Volt in case your battery runs out or you go for a long distance. However, the amount of fill ups per year will be much fewer with an electric vehicle.

- You can plug the car into any outlet of the proper voltage and charge the car. Electricity is much cheaper than gas, and the savings will be dramatic;

- Electric cars give off no emissions. Electric cars are even better than hybrids in this regard. Hybrids running on gas give off emissions, while electric cars are totally 100 percent free of pollutants;

- Safety is a big concern with these vehicles. However, the fluid batteries actually take impact better than a fully made gas car, and can help even more in the event of an accident.

**Disadvantages**

- The first disadvantage is price. Electric car batteries are not cheap, and the better the battery, the more you will pay. For example, the Chevy Volt has a 40 mile range and sells for around \$30,000. Compare that to the 250 to 300 mile range of cars made by Tesla Motors, which sell for anywhere between \$50,000 and \$100,000;

- Even though it is a quiet ride, silence can be seen as a disadvantage. People like to hear cars when they are coming up behind them or beside them, and you

can't hear if an electric car is near you. This has been known to lead to accidents;

- Most cars take a long time to recharge their batteries. Tesla Motors' Model S can recharge in 45 minutes, but most electric cars right now take hours to charge. You can't drive the car while the batteries are charging usually, so your car will be out of commission while it is plugged in;

- Most electric cars currently on the road do not have long ranges. Although in the future it will improve, most of the cars have a range of less than 25 miles, and you can't truly see the great benefits until you ride in a vehicle with a longer range.

1. Electric cars have:

- a. more advantages than disadvantages
- b. more disadvantages than advantages
- c. both advantages and disadvantages

2. With minimal gas usage comes:

- a. concern
- b. disposal
- c. economy

3. Electric car batteries are:

- a. cheaper than gasoline car batteries
- b. expensive
- c. more expensive than rechargeable batteries

4. Silence in electric car can be seen as:

- a. disadvantage
- b. advantage
- c. accident

5. You can't drive the car while:

- a. the car is plugged out
- b. you are out of commission
- c. the batteries are charging

**3. Read the text and choose the word that fits each space. Circle the correct letter (A, B, C) for each sentence. (20 points)**

Magnetic levitation (maglev) is a relatively new (1)\_\_\_\_\_ technology in which non-contacting vehicles travel safely at (2)\_\_\_\_\_ of 250 to 300 miles-per-hour or higher while suspended, guided, and propelled above a guide-way by magnetic fields. The guide-way is the physical structure along which maglev vehicles are levitated. Various guide-way configurations, e.g., T-shaped, U-shaped, Y-shaped, and box-beam, made of steel, concrete, or aluminum, have been (3)\_\_\_\_\_.

The three primary functions basic to maglev technology: levitation or suspension; propulsion; and guidance. In most current (4)\_\_\_\_\_, magnetic forces are used to perform all three functions, although a nonmagnetic source of propulsion could be used.

Electromagnetic suspension (EMS) is an (5)\_\_\_\_\_ force levitation system whereby electromagnets on the vehicle interact with and are attracted to ferromagnetic rails on the guide-way. EMS was made practical by advances in control systems that maintain the air gap between vehicle and guide-way, thus preventing contact.

A	B	C
1. transportation	suspension	levitation
2. capacity	speeds	voltage
3. proposed	increased	constructed
4. wheels	fields	systems
5. attractive	powerful	systemic

## II. Grammar Comprehension

**4. Choose the answer that best fits each space. Circle the correct letter (a, b, c) for each sentence. (20 points)**

1. This method was so complicated \_\_\_\_\_ only little result.
  - a. to give
  - b. have given
  - c. giving
2. This experiment is \_\_\_\_\_ the dependence of temperature on solubility.
  - a. showing
  - b. having shown
  - c. to show
3. This substance is rarely free \_\_\_\_\_ in nature.
  - a. to find
  - b. to being found
  - c. to be found
4. This apparatus enables accurate measurements \_\_\_\_\_ out with ease.
  - a. to be carried
  - b. to carry
  - c. to have been carried
5. The acid seems to be likely \_\_\_\_\_ the precipitate.
  - a. dissolving
  - b. to dissolve
  - c. dissolved
6. They obtained what \_\_\_\_\_ a strong acid.
  - a. seemed
  - b. have been seems
  - c. being seemed to be

7. This substance is seen through a microscope \_\_\_\_\_ of small crystals.
- to consist
  - consisting
  - have consisted
8. The author reports \_\_\_\_\_ a new method.
- applied
  - have applied
  - having applied
9. In recent years man \_\_\_\_\_ in controlling chemical changes.
- would succeed
  - has succeeded
  - will succeed
10. Sugar dissolves in water. \_\_\_\_\_ common salt.
- So do
  - So have done
  - So does

### III. Grammar in Use

**5. Translate the sentences from Ukrainian into English. Choose the correct variant (A, B, C) (15 points)**

1. Чим вище стає температура, тим швидше рухаються молекули.
- As the temperature decreases the quicker becomes the movement of the molecules.
  - The more the temperature, the quicker the molecules are being moving.
  - As the temperature increases the quicker becomes the movement of the molecules.
2. В цьому випадку треба очікувати підвищення температури.
- Decrease of temperature would be expected in this case.

- b. A rise of temperature should be expected in this case.
  - c. A rise of temperature has to be expecting in this case.
3. Вони побудували те, що було, як вважають, найбільш потужним мікроскопом того часу.
- a. They built what is believed to be the most powerful microscope of that time.
  - b. They had built what is believed to be the most reliable microscope of that time.
  - c. They built what is believe to be the most powerful microscope.
4. Температура, під час якої робляться розрахунки, повинна бути постійною.
- a. The temperature at which measurements are being made would be constant.
  - b. The temperature at which the measurements are made may be constant.
  - c. The temperature at which measurements are made should be constant.
5. Описується система, яка складається з двох ламп.
- a. The system is described where two lams exist.
  - b. A system is described which contains two tubes.
  - c. A system containing two tubes has been explained.

**6. Translate the sentences from English into Ukrainian. Choose the correct variant (A, B, C). (15 points)**

1. To understand this phenomenon is to understand the structure of atoms.
- a. Щоб зрозуміти цей феномен потрібно зрозуміти структуру атомів.
  - b. Зрозуміти це поняття – це значить зрозуміти структуру атомів.
  - c. Зрозуміти ці явища означає також зрозуміти структуру атомів.
2. (In order) to understand the phenomenon the laws of motion should be considered.
- a. Щоб зрозуміти це явище, треба розглянути закони руху.

- b. Щоб зрозуміти це явище, треба використовувати закони руху.
  - c. Щоб зрозуміти ці явища, треба прийняти до уваги закони руху.
3. This substance they supposed to be an element.
- a. Вони вирішили, що ця субстанція є елементом.
  - b. Субстанція розглядається ними як елемент.
  - c. Вони припустили, що ця речовина є елементом.
4. This substance may easily be demonstrated to be a compound.
- a. Цю субстанцію можна легко продемонструвати як складну.
  - b. Можна легко продемонструвати, що ця субстанція є сполукою.
  - c. Цю субстанцію можна легко продемонструвати у сполуці.
5. The above law does hold.
- a. Вищезазначений закон дійсно справедливий
  - b. Вищезазначений закон підтриманий
  - c. Вищезазначений закон підтримує

### **Вариант 3.**

#### **I. Reading Comprehension**

**1. Read the text and decide whether the statements are true (T) or false (F). (15 points)**

#### **Why is Recycling Important?**

Recycling is the process of separating, collecting and remanufacturing or converting used or waste products into new materials. The recycling process involves a series of steps to produce new products. Recycling helps extend the life and usefulness of something that has already served its initial purpose by producing something that is useable. Recycling has a lot of benefits and importance not only to us humans but especially to our planet.

Almost everything we see around us can be recycled. Different materials require different techniques when recycled. Recyclable materials commonly include batteries, biodegradable waste, clothing, electronics, garments, glass, metals, paper, plastics and a lot more.

The recycling process is a cycle and is composed of three stages. The first stage is the collecting and sorting. In this stage, waste materials are collected and then processed and sorted according to its type and use. After these materials are sorted, they are ready for the second stage, which is the manufacturing.

The manufacturing stage is the phase where the collected and sorted materials are processed into new reusable products. Finally, after new products are manufactured, the next stage follows which is the selling of the recycled products to consumers. When the product that the consumers bought already served its purpose, the recycling process will then again continue as these products are collected.

Recycling has a lot of benefits that can help people and save the environment as well. Its importance can be observed in many different ways. Here are some great reasons why recycling is important:

Recycling different products will help the environment. For example, we know that paper comes from trees and many trees are being cut down just to produce paper. By recycling it, we can help lessen the number of trees that are cut down. Products made from raw materials that came from our natural resources should be recycled so that we can help preserve the environment.

It takes less energy to process recycled materials than to process virgin materials. For example, it takes a lot less energy to recycle paper than to create new paper from trees. The energy from transporting virgin materials from the source is also saved. Saving energy also has its own benefits like decreasing pollution. This creates less stress on own health and our economy.

1. The recycling is the process that involves production of new products.
2. Recycling doesn't have any disadvantages.
3. The process of recycling consists of four stages.
4. The second stage of recycling includes collecting of the materials.
5. It takes more energy to process virgin materials than to process recycled materials.

***2. Read the text and choose the correct answer to the question. (15 points)***

#### Magnetic Levitation Principles

Magnetic fields are used to describe forces at a distance from electric currents. These currents are of two types: (1) free, or Amperian, currents as drawn from a battery pack, power supply, or an electrical outlet and (2) bound currents as in permanent magnet materials. The forces come in three variations: a.) An electrical current feels a force from another current, b.) a current feels a force from a permanent magnet, and c.) a permanent magnet feels a force from another permanent magnet. This action at a distance is described by saying a magnetic field exists created by one of the bodies at the location of the other body. The magnetic

field is the medium by which the force is transferred.

By demonstrating that magnetic materials can be reduced to effective current distributions, this discussion forms the basis for calculating the forces on permanent magnets. The magnetic fields due to free current distributions are calculated next. These fields are used to calculate the forces felt by current-carrying conductors. Time-varying currents cause time-varying magnetic fields. These changing magnetic fields induce electric currents which, in turn, experience a force.

Maglev systems utilize the fundamental physics of electric currents experiencing forces-at-a-distance. These systems are most often described in terms of the interaction of electrical current with magnetic fields. Because the masses of the vehicles are large, large forces are required for magnetic suspension. These large forces are provided by the high magnetic fields of either large superconducting currents or small air gaps in normal ferromagnetic circuits.

Superconducting Maglev technology was initiated in the late 1960's and early 1970's in the United States in 1969 when Drs. James Powell and Gordon Danby of New York's Brookhaven National Laboratory invented the concept of a repulsive magnetic suspension using superconducting magnets. In the mid-1970's the US stopped Maglev development due to funding problems. Other countries, however, continued to develop Maglev and today have viable systems. In the early 1990's Maglev research was rekindled at a Federal government level. Germany's Transrapid vehicle has been extensively tested and has been proposed for use on several projects in this country. The Germans are presently constructing a Transrapid route from Hamburg to Berlin.

Japan is developing a system that uses superconducting magnets and is currently constructing a major test route that will ultimately be incorporated into a revenue-producing route. Approximately 80% of this system will be in tunnels cut into mountains. This has greatly increased the construction cost but has decreased the cost of land acquisition for the Maglev right-of-way.

1. There are two types of electric currents:
  - a) permanent and bound
  - b) time-varying and rechargeable
  - c) free and bound
2. Time-varying currents cause:
  - a) permanent magnet field
  - b) magnetic suspension
  - c) time-varying magnetic field
3. Because the masses of the vehicles are large, large forces are required:
  - a) for magnetic suspension
  - b) for current distributions
  - c) ultimate tunnels
4. Maglev technology was initiated by:
  - a) Federal government
  - b) Drs. James Powell and Gordon Danby
  - c) Japan
5. Approximately 80% of the superconducting system in Japan will be:
  - a) incorporated into a revenue-producing route
  - b) rekindled at a Federal government level
  - c) tunnels cut into mountains

***3. Read the text and choose the word that fits each space. Circle the correct letter (A, B, C) for each sentence. (20 points)***

Galvanic (1)\_\_\_\_\_ is caused by the existence of a galvanic cell - essentially two metals submersed in an electrolyte - that results in an attack on one (2)\_\_\_\_\_ at the expense the other. For a galvanic cell to form, two electrochemically different metals must exist within a localized electrolytic (3)\_\_\_\_\_. This type of corrosion is often witnessed in marine environments due

to salt water's effectiveness as an electrolyte. Different metals submersed in close proximity in salt water will form an electrolytic cell, resulting in (4)\_\_\_\_\_ corrosion. Metals and metal alloys all possess different electrode potentials - a relative measure of a metal's tendency to become active in a given electrolyte. The more (5)\_\_\_\_\_, or less noble, a metal is the more likely it will form an anode in an electrolytic environment. While the more noble a metal is, the more likely is will form a cathode when in the same environment.

	A	B	C
1.	suspension	corrosion	provision
2.	metal	Cell	environment
3.	electrode	environment	electrolyte
4.	chemical	Direct	galvanic
5.	passive	metal-hulled	active

## II. Grammar Comprehension

**4. Choose the answer that best fits each space. Circle the correct letter (a, b, c) for each sentence. (20 points)**

1. Some properties of metals ..... with in this chapter.
  - a. to deal
  - b. dealing
  - c. are dealt
2. The effect of plastic deformation ..... by several investigators.
  - a. is being approaching
  - b. has been approached
  - c. will be approached
3. The problem ..... by many researchers.
  - a. is approach
  - b. approached

- c. was approached
4. The internal and boundary pressures ..... by intermolecular forces.
- a. are affected
  - b. affected
  - c. will have affected
5. .... the mole as the weight unit of the solute, the concentration of the solution is expressed as the molarity.
- a. Use
  - b. Using
  - c. Having used
6. Examined in thin sections under a microscope, the shells ..... as circular areas.
- a. appear
  - b. has appeared
  - c. had appeared
7. .... relations of interdependence among physical facts, modern physics tries to interpret these relations.
- a. Establishing
  - b. Established
  - c. Having established
8. The molecules of a polar substance because of their being reactive ..... with one another.
- a. combining
  - b. combine
  - c. would combine
9. Combustion may be incomplete owing to insufficient oxygen ..... present.
- a. have been
  - b. be
  - c. being

10. Thomson investigated the possibility of these cathode rays ..... charged particles.

- a. be will
- b. have been
- c. being

### III. Grammar in Use

**5. Translate the sentences from Ukrainian into English. Choose the correct variant (A, B, C). (15 points)**

1. Першим вченим, який відкрив це явище, був Лавуазьє.
  - a. The first scientist who would discover this phenomenon is Lavoisier.
  - b. The first scientist to discover this phenomenon was Lavoisier.
  - c. Lavoisier is the first scientist who has been discovered this phenomenon.
2. Тенденція полягала в тому, що газ ставав іонізованим.
  - a. The tendency was for the gas to become ionized.
  - b. The tendency was for the gas in becoming ionized.
  - c. The tendency was for the gas to have been ionized.
3. Явища, які трапляються під час спалахів на сонці, ретельно досліджуються.
  - a. Phenomenon which occurred during solar flares are been discovered.
  - b. Phenomena occurring during solar flares are thoroughly investigated.
  - c. Phenomena that occur during solar flares investigated.
4. Виявлено, що всі речовини мають особливий незмінний склад.
  - a. Defining substances have had a definite invariant composition.
  - b. Substances are defined as having a definite invariant composition.
  - c. Defining substances are having a definite invariant composition.
5. Автор повідомляє про те, що він використав новий метод.
  - a. The author reports that he would applied a new method.

- b. The author reports having had applied a new method.
- c. The author reports having applied a new method.

**6. Translate the sentences from English into Ukrainian. Choose the correct variant (A, B, C). (15 points)**

1. It is not easy to convince one in the reality of these facts.
  - a. Нелегко пояснити комусь правдивість цих фактів.
  - b. Нелегко підтримати когось на снові лише цих фактів.
  - c. Нелегко переконати людину в реальності цих фактів.
2. The problems of synthesis attacked at the laboratory are of utmost interest.
  - a. Проблеми синтезу, якими почали займатися в лабораторії, представляють собою великий інтерес.
  - b. Проблеми синтезу, які були розкритиковані в лабораторії становлять великий інтерес.
  - c. Проблеми синтезу, які розглядаються в лабораторії, становлять великий інтерес.
3. They watched the temperature gradually rising.
  - a. Вони слідкували за тим, як поступово підвищувалась температура.
  - b. Вони дивилися на температуру, поступово підвищуючи її.
  - c. Вони контролювали температуру, яка поступово знижувалася.
4. The volume of a gas is dependent on temperature and so is the reaction rate.
  - a. Об'єм газу залежить від температури та реакції.
  - b. Об'єм газу залежить від температури, та швидкість реакції – теж.
  - c. Об'єм газу не залежить від температури та рівня реакції.
5. When in motion the motor rotates a disk.
  - a. Під час руху мотор обертає диск.
  - b. Мотор обертає диск, що рухається.
  - c. Мотор прискорює рух диску.

## **Вариант 4.**

### **I. Reading Comprehension**

**1. Read the text and decide whether the statements are true (T) or false (F). (15 points)**

#### **Solar Energy - Advantages and Disadvantages**

Solar power was originally developed to provide energy to satellites that orbit the earth. Solar powered devices have expanded dramatically in recent years. Most of us use calculators powered by solar cells and advances in technology have made it possible to conceive of solar powered homes, cars, and many other electrically powered machinery and devices. There is no question that converting some of the world's energy requirements to solar power is in the best interest of the worldwide economy and the environment. As with any power supply, solar power has advantages and disadvantages.

The advantages to using solar power are many. Solar energy is free and will cause no pollution to the environment and there is no waste. In sunny locations, solar power is considered the best way to provide electricity to remote locations. For low-power requirements such as in battery chargers and flashlights, solar power is by far the most inexpensive form of energy. There is an unlimited supply of solar energy available. There are costs involved in capturing this energy and storing it, but the world's long-term energy needs can be at least partially filled by electricity produced from solar power. Some of the disadvantages of solar power include the fact that reliability will depend on the amount of sunlight in any particular area. The demand for electricity throughout the world is tremendous, and until improved methods of producing and storing solar power are developed, it will be quite costly to produce adequate amounts of solar energy. Solar power requires a means to store the electricity that is produced. Storage of this electricity is an issue and a reliable back-up means of electricity is required at the present time. It is expensive to build solar power stations and a solar cells cost a lot in comparison to

the amount of energy they will produce over their lifetime. Solar power does not work at night, thus the need for back-up methods of providing electricity. Solar power is a renewable source of electricity. The sun will keep shining for as long as humans inhabit the earth, so it makes sense to utilize the energy from the sun to provide for human electricity needs. With extensive research and development, solar power can be the primary source of electricity in most countries. There is still much to learn about the economical production of solar power and storage, but in the future civilization will have no choice other than to use solar energy as a primary source of producing electricity.

1. Solar powered devices haven't expanded dramatically in recent years
2. The new technology has made it possible to conceive of solar powered homes, cars, and many other electrically powered machinery and devices
3. For low-power requirements such as in battery chargers and flashlights, solar power is by far the best and the most expensive form of energy
4. Solar power reliability will depend on the amount of sunlight in any particular area
5. With extensive research and development, solar power can be the primary source of electricity in most countries

***2. Read the text and choose the correct answer to the question. (15 points)***

What is a service robot?

A service robot is a robot that is capable of providing services to its owner. These robots generally are autonomous but can be controlled, either remotely or manually, by built-in systems. They also might be synced up with WiFi home networks or smart environments. Service robots can differ in specific functions, but their jobs usually can be described as helping humans perform tasks that are dangerous, difficult, dirty, repetitive or distant. A service robot can ease the

workload of a human being in this way, especially if the task is frequent, such as with home chores. They also can be used in medicine, space, agriculture, firefighting, hotels and entertainment and to perform industrial tasks. Service robots are particularly useful in the automotive industry, where heavy lifting and fine calibrations are required to build a vehicle.

Domestic robots are widely popular. A service robot used around the home can do anything from vacuum a carpet to mow a lawn. A domestic robot can help its owner clean pools, mop floors and iron clothes. Some robots can even help homeowners clean up after pets. In cases like these, a robot can routinely pick up fur that has been shed or it can clean litter boxes after cats have used them, ensuring that the litter boxes remain fresh and that odors are controlled.

Service robots also can help move objects from one place to another within a home. A service robot can transport clothes to a washing machine for laundering, or it can take glasses from a table to dishwasher. These functions are attractive to those who spend a lot of time cooking meals or are often tired from long days. If a service robot is employed while children are in the home, it can significantly reduce the time parents spend doing household chores. They also might give parents peace of mind, because they know that glassware, for example, won't be handled and possibly broken by children if the robot arrives to collect the dishes.

A service robot can be particularly useful to disabled or elderly individuals. The elderly and the disabled can be limited in their mobility, so a service robot in the home can encourage independent living. These robots can aid with physical tasks, and they can facilitate many cognitive and social services. For instance, service robots might give the person a way to communicate with friends or relatives, link the person to his or her doctor or give the person daily reminders.

1. A service robot is:
  - a) autonomous
  - b) controlled

- c) autonomous and controlled
2. A service robot can ease:
- a) the workload of a human being
  - b) dangerous, difficult, dirty, repetitive or distant work
  - c) routine work
3. Domestic robots are particularly useful in:
- a) in the automotive industry, where heavy lifting and fine calibrations are required to build a vehicle
  - b) helping its owner clean pools, mop floors and iron clothes
  - c) encouraging independent living
4. Particularly useful to disabled or elderly individuals are:
- a) daily reminders
  - b) automotive robots
  - c) domestic robots
5. The robots can not only aid with physical tasks, but also:
- a) can facilitate many cognitive and social services
  - b) give the person daily reminders
  - c) do anything from vacuum a carpet to mow a lawn

**3. Read the text and choose the word that fits each space. Circle the correct letter (A, B, C) for each sentence. (20 points)**

### How Does a Strain Gauge Work?

A strain gauge is a device used to (1)\_\_\_\_\_ the mechanical strain on an object or structure. When an (2)\_\_\_\_\_ is under a lot of pressure, the material can slowly fatigue and begin to subtly bend. These bends, nearly impossible to see with the naked eye, can be early indicators that a building is aging or beginning to buckle. Strain gauges constantly measure these minute (3)\_\_\_\_\_, giving engineers an easy way to monitor a structure's (4)\_\_\_\_\_.

A strain gauge usually consists of a long strip of metal (5)\_\_\_\_\_ attached to a sheet of flexible material. The strip is thin and long, and zig-zags back and forth between the insulating sheets to maximize its length. At each end, the gauge is attached to a Wheatstone bridge, a device that measures its resistance. The gauge is cemented onto whatever surface it is meant to measure.

	A	B	C
1)	measure	resist	constrict
2)	resistor	object	subject
3)	directions	causes	changes
4)	maximization	condition	propulsion
5)	foil	spoil	fail

## II. Grammar Comprehension

**4. Choose the answer that best fits each space. Circle the correct letter (a, b, c) for each sentence. (20 points)**

- 1) Recent discoveries \_\_\_\_\_ by the development of the research technique.
  - a) are greatly assisting
  - b) have been greatly assisted
  - c) had been greatly assisted
- 2) Any deduction is usually \_\_\_\_\_ by a number of experiments and observations.
  - a) preceded
  - b) has preceded
  - c) preceding
- 3) The presence of slight traces of hydrogen peroxide in the atmosphere \_\_\_\_\_ for by the action of ultraviolet light upon the moist oxygen.
  - a) is accounting

- b) is accounted  
c) have been accounted
- 4) An attempt \_\_\_\_\_ to measure samples by immediately raising the temperature.  
a) was made  
b) being made  
c) had made
- 5) Attention \_\_\_\_\_ to the electron microscopic observations.  
a) was given  
b) is giving  
c) gives
- 6) The problem \_\_\_\_\_ by the laboratory of physical chemistry in 1981 is solved.  
a) having been attacked  
b) attacks  
c) attacked
- 7) Substances attacked by moisture should \_\_\_\_\_ dry.  
a) keep  
b) be kept  
c) be kepted
- 8) The danger of oversimplification \_\_\_\_\_ the greater the more multifarious and complex the phenomenon is.  
a) is  
b) being  
c) to be
- 9) As the pressure \_\_\_\_\_, the overflow through the pipe increases and, within rather wide limits, the greater becomes the current through the pipe.  
a) would increase  
b) is increasing

- c) is increased
- 10) The experimental work \_\_\_\_\_ on alkali metal film reported to be one atom thick.
- a) is made  
b) to be made  
c) was done

### III. Grammar in Use

**5. Translate the sentences from Ukrainian into English. Choose the correct variant (A, B, C). (15 points)**

- 1) Щоб зрозуміти цю залежність, подивіться на графік.
- a) In order to see the solution, see the graph.  
b) For understanding, look at the graph.  
c) To see the dependence, look at the graph.
- 2) Цей метод був настільки складним, що давав тільки незначний результат.
- a) This method was so complicated as to give only little result.  
b) This method was too complicated to give any results.  
c) This method was so complex as for giving any results.
- 3) Необхідно використовувати каталізатор задля того, щоб реакція йшла швидше.
- a) It is necessary to use the catalyst for the reaction to pass quickly.  
b) It is necessary to use a catalyst, if a reaction is to proceed more rapidly.  
c) It is necessary to have used the catalyst for quickening the reaction.
- 4) Питання, яке треба далі розглянути, стосується іонізації газів.
- a) The question under consideration was dealt the ionization of gases.  
b) The problem to solve next had been dealt the ionization of gases.  
c) The problem to consider next is concerned with the ionization of gases.

- 5) Ми не знаємо якою є природа цього явища.
- a) We don't know what the nature of this phenomenon is
  - b) We don't know this phenomenon nature
  - c) The phenomenon nature is unknown

**6. Translate the sentences from English into Ukrainian. Choose the correct variant (A, B, C). (15 points)**

- 1) I could have gone to the conference, but I lost my invitation.
- a) Я поїхав на конференцію, але загубив своє запрошення.
  - b) Я можу поїхати на конференцію, але мене не запросили.
  - c) Я б міг приїхати на конференцію, але я загубив запрошення.
- 2) We shall study minerals to be obtained in these mountains.
- a) Ми повинні вивчити мінерали, які добули в цих горах.
  - b) Ми будемо вивчати мінерали, які можна добути в цих горах.
  - c) Ми будемо вивчати мінерали, які потрібно добути в цих горах.
- 3) They believe the substance to have dissolved.
- a) Вони вважають, що речовина розчинилася.
  - b) Вони вірять в те, що речовина повинна розчинитися.
  - c) Вони вірять, що речовина зникла.
- 4) The people from the Laboratory of Low Temperatures are reported to have completed their experiment.
- a) Згідно отриманих даних, працівники лабораторії низьких температур завершили свій дослід.
  - b) Люди з лабораторії низьких температур повідомили про своє завершення дослід.
  - c) Люди з лабораторії низьких температур повідомляють, що саме зараз закінчують свій дослід.
- 5) This substance has never been thought to possess radioactive properties.
- a) Ця речовина ніколи не мала радіоактивних властивостей.

- b) Не думав, що ця речовина має радіоактивні властивості.
- c) Ніколи не думали, що ця речовина має радіоактивні властивості.

## **Вариант 5.**

### **I. Reading Comprehension**

***1. Read the text and decide whether the statements are true (T) or false (F). (15 points)***

#### **Types of Brakes**

What is the point of owning your dream car, when it does not have brakes? Sounds strange, right! Though you would be able to start your car, what about slowing your vehicle or stopping it? Definitely, you wouldn't want to go back to the era of when vehicles moved and stopped at the stroke of a whip. Talking of the present vehicle industry, brakes form the most important component of any vehicle. Used to slow or stop a moving vehicle, brakes are installed in all vehicles, whether they are automobiles, motorcycles, trains, or even airplanes. The friction generated by pushing the brake converts kinetic energy into heat, which causes the brake rod to move and stop the vehicle. Depending upon the vehicle type and desirability, brakes are grouped into different types.

Disc brakes are invented by Frederick William Lanchester in 1902, disc brakes are considered to be the best type of brakes. They have a disc that is fitted behind the wheel. As the brake shoe is pressed, the disc is squeezed against the wheel, causing it to stop. It is generally a round, flat piece of metal made from cast iron. Disc brakes are popular mainly due to their durability, as they last for more than three decades. They are more effective than other types of brakes and work best on motorcycles, cars, and bicycles.

Vacuum brakes were originally devised for use on trains, vacuum brakes work on the principle of creating air pressure changes in a compartment called brake cylinder. The brake cylinder consists of a piston that utilizes the force of incoming air to move the brake shoes through a rod. This happens due to pressing down the brake pedal that causes friction to move the brake rod. As opposed to

disc brakes and air brakes, vacuum brakes take more time to show their effect. It is due to this reason that trains take considerably more time to stop when the brakes are pressed.

Drum brakes are similar to vacuum brakes, drum brakes use oil pressure instead of air pressure as in the case with vacuum brakes. These were invented by Louis Renault in 1902. While the rod moves and causes the brake shoes to squeeze, friction is caused on a rotating drum that is attached to the wheel. The speed of the wheel can be controlled by stopping or slowing the drum. Drum brakes do not last longer and demand frequent replacing; hence, they are not much effective as compared to disc brakes. And for this reason, they are being replaced by disc brakes in most vehicles.

Air brakes are used in two different mechanisms monitoring two different types of brakes. Firstly, they are applied in road vehicles, particularly in trucks and trains. They consist of either a disc or drum brake, but utilize compressed air instead of compressed liquid to create friction. Secondly, air brakes are also used in airplanes for slowing and monitoring the speed of the aircraft while in flight. Aileron is one such example of air brakes, that is, the surface that moves out from the plane to create more wind resistance.

1. Used to speed up a moving vehicle, brakes are installed in all vehicles, whether they are automobiles, motorcycles, trains, or even airplanes.
2. Depending upon the vehicle type and desirability, brakes are grouped into different types.
3. Disc brakes are popular mainly due to their quality, as they last for more than four decades.
4. Drum brakes were invented by Frederick William Lanchester in 1902.
5. Compressed air brakes consist of either a disc or drum brake, but utilize compressed air instead of compressed liquid to create friction.

**2. Read the text and choose the correct answer to the question. (15 points)**

### **Propulsion Systems**

Propulsion is the motor that makes spaceflight possible. Without a way to propel craft we can't keep artificial satellites in orbit and send probes into deep space; subsequently propulsion research is some of the most important in the space program. What are these systems and how do they work?

All designs being used or tested involve what boils down to reaction engines; the use of some type of reaction chemical to eject a mass out of the engine. This system uses Newton's Third Law to function; for every action there is an equal and opposite reaction. So if a reaction ejects the propellant in one direction the rocket will move in the opposite direction with equal force.

The most common propulsion system is the liquid fuel rocket; a liquid state propellant heated into a hot exhaust that is ejected in the opposite direction of the rocket's destination. The two main types of liquid fuel rockets are monopropellant and bipropellant rockets. The liquid fuel has changed over time from gas to kerosene, liquid hydrogen and oxygen. Bipropellant rockets are more complicated; two liquids are used. Fuel is the main propellant, burned to create thrust. The other is an oxidizer that helps the fuel. This system works best because it can be controlled using valves and pressure from the tanks.

Another type of propulsion system is the solid rocket. The solid rocket works using the same reaction method; however, the fuel is in a solid state. This propulsion system is considered to be the world's oldest man made engine and has been around since ancient China. The solid fuel is burned to create a heated exhaust, as in the case liquid fuel, that generates the necessary thrust. The down side is that once ignited, the thrust is hard to control.

The ion engine is a new kind of engine that works by bombarding a neutral gas with electrons turning it into plasma. The plasma is then ejected using

electrostatic and magnetic forces. Currently ion engines are used only as attitude adjusters on some satellites and space probes because their thrust capacity doesn't match conventional means of propulsion.

Scientists are also looking to use propulsion systems that use the atmosphere itself as a source fuel; thereby reducing fuel costs significantly. These propulsion systems are called ramjets and scramjets; supersonic jet engines that collect air using the forward motion of an aircraft. This air is mixed in the combustion chamber with spent fuel. If perfected, this propulsion system will allow an aircraft that can travel faster than Mach 5, leave the atmosphere on its own power.

Scientists are also looking at the nuclear thermal rocket that uses a nuclear reaction to heat a propellant, usually hydrogen, high enough to create thrust. This system is still in its testing phase as the heat produced from a nuclear reaction would melt most materials.

1. The system of propulsion uses:
  - a) Newton's Second Law
  - b) Newton's Third Law
  - c) Law of opposition
2. The most common propulsion system is:
  - a) solid rocket
  - b) ramjets
  - c) liquid fuel rocket
3. Bipropellant rockets are more complicated because:
  - a) a liquid state propellant heated into a hot exhaust
  - b) two liquids are used
  - c) the thrust is hard to control
4. The ion engine is a new kind of engine that works by:
  - a) collecting air using the forward motion of an aircraft
  - b) mixing of the air in the combustion chamber with spent fuel

- c) bombarding a neutral gas with electrons turning it into plasma
- 5. The propulsion system is still in testing phase as:
  - a) as the heat produced from a nuclear reaction would melt most materials
  - b) The plasma is then ejected using electrostatic and magnetic forces
  - c) The solid fuel is burned to create a heated exhaust

**3. Read the text and choose the word that fits each space. Circle the correct letter (A, B, C) for each sentence. (20 points)**

CAD stands for Computer Aided (1)\_\_\_\_\_ or Computer Aided Drafting. CAD was (2)\_\_\_\_\_ in the early 60s. Today it is the premier way to design, develop and optimized products. People use CAD every day to design (3)\_\_\_\_\_ every product you see. Generally, designers use CAD to design a product, and then produce prints to (4)\_\_\_\_\_ that product. A print is a picture of a part or assembly that is very exact. It includes the dimensions and a parts list used to manufacture a product.

CAD is the use of computer (5)\_\_\_\_\_ based packages that assist engineers, architects and other design professionals in their designs. CAD is the part of the main designing process and involves both software and sometimes hardware. Current software packages range from 2D vector based drafting systems to 3D solid and surface modelers.

	A	B	C
1)	design	district	detector
2)	generated	developed	prevented
3)	really	sometimes	virtually
4)	manufacture	used	partitioned
5)	planetary	software	machinery

## II. Grammar Comprehension

**4. Choose the answer that best fits each space. Circle the correct letter (a, b, c) for each sentence. (20 points)**

- 1) The quality of the instruments \_\_\_\_\_ can be safely relied upon.
  - a) using
  - b) use
  - c) used
- 2) Emphasis \_\_\_\_\_ on the evolution of the other surface emission methods.
  - a) is made
  - b) making
  - c) had been made
- 3) You are \_\_\_\_\_ into consideration that apart from kinetic evidence there is little direct proof of the production of free oxygen atoms by photolysis of any oxide.
  - a) taking
  - b) taken
  - c) to take
- 4) Intimate contact of the substances that are \_\_\_\_\_ is always necessary.
  - a) being
  - b) reacting
  - c) react
  - d) to react
- 5) Examination with *X-rays* has shown the halogens even in the solid state \_\_\_\_\_ diatomic molecules.
  - a) possesses to possess possessed
- 6) The gamma-ray \_\_\_\_\_ here may be identified with the one observed in the Coulomb excitation.
  - a) observing

- b) had being observed  
c) observed
- 7) \_\_\_\_\_ together, these effects, occurring as they do in rapid succession, provide a simple interpretation of the production of showers.
- a) Taken  
b) Take  
c) Having being taken
- 8) Phosphine is \_\_\_\_\_ by heating white phosphorus in a concentrated solution of sodium hydroxide.
- a) preparing  
b) prepared  
c) prepare
- 9) Combustion may be incomplete owing to insufficient oxygen \_\_\_\_\_.
- a) presented  
b) being present  
c) present
- 10) \_\_\_\_\_ in London he visited the British Museum.
- a) Being  
b) To be  
c) Been

### III. Grammar in Use

**5. Translate the sentences from Ukrainian into English. Choose the correct variant (A, B, C) (15 points)**

- 1) Цей дослід повинен показати залежність температури від розчинності.
- a) This experiment must show the dependence of temperature from solubility.  
b) This experiment is to show the dependence of temperature on solubility.

- c) This experiment shows the dependence of temperature on solubility.
- 2) Хлор поєднується з воднем і заміщує його.
- a) Chlorine both combines with and replaces hydrogen.
  - b) Chlorine is combining the hydrogen and replaces it.
  - c) Chlorine is being combined to hydrogen replacing it.
- 3) Я саме раз хотів пояснити різницю в поведінці цих двох речовин.
- a) I wanted to explain the difference between these two substances.
  - b) What I wanted to explain is the behaviour difference of this substance.
  - c) What I wished to do was to explain the difference in the behaviour of these two substances.
- 4) Резерфорд перш за все займався структурою атому і саме в цю область він зробив свій найбільший внесок.
- a) Rutherford was primarily engaged in atomic structure, in which field he made his most important contribution.
  - b) First of all Rutherford learned the atomic structure and here he made big contribution.
  - c) Rutherford was the first to be engaged in atomic structure, in which field he made his contribution.
- 5) Від студентів вимагається знання основних законів термодинаміки.
- a) Students may know the main laws of thermodynamics.
  - b) The students had to learn the main laws of thermodynamics.
  - c) The requirement is that the students should know the main laws of thermodynamics.

**6. Translate the sentences from English into Ukrainian. Choose the correct variant (A, B, C). (15 points)**

- 1) In 1913 N. Bohr made the theoretical discovery of his atomic model, a fact that was of great importance for further research.
- a) У 1913 році Н.Бор зробив теоретичне відкриття атомної моделі, що

- було важливим для дослідження.
- b) У 1913 році Н.Бор теоретично довів атомну модель, що стало важливим для подальшого дослідження.
  - c) У 1913 році Н. Бор зробив теоретичне відкриття атомної моделі; цей факт мав велике значення для подальшого дослідження.
- 2) The determinations of the mechanical equivalent of heat were published by J. Joule, an English physicist, in 1845.
- a) Докази механічного еквіваленту тепла були опубліковані Джоулем, англійським фізиком, у 1845 році.
  - b) Визначення механічного еквіваленту тепла були опубліковані Джоулем, англійським фізиком, у 1845 році.
  - c) Вирахування механічного еквіваленту тепла були опубліковані Джоулем, англійським фізиком, у 1845 році.
- 3) A device is described which makes possible measurements of both absolute values, of, and small changes in, the elastic constants of solids.
- a) Описується пристрій, який дозволяє робити зміни як абсолютних величин, так і невеликих змін деформації твердих тіл.
  - b) Був описаний пристрій, що дозволяє вирахувати абсолютні показники та малі зміни постійних твердих речовин.
  - c) Описується пристрій, що дозволяє робити зміни і абсолютних показників і маленьких змін деформації твердих тіл.
- 4) The question arises as to what the decrease in temperature was due to.
- a) Постає питання, що робити з пониженням температури.
  - b) Постає питання як саме знижується температура.
  - c) Постає питання, чим обумовлене зниження температури.
- 5) Optical deflections are described that do not require a rotator.
- a) Були описані оптичні відхилення, що не потребує ротатора.
  - b) Описуються оптичні відхилення, які не потребували ротатора.
  - c) Описуються оптичних відхилень, які не потребують ротатора.

## **РОЗДІЛ 2.**

### **Комплексна контрольна робота для студентів 3 курсу**

спеціальностей: 6.050101 Комп'ютерні науки, 6.050103 Програмна інженерія, 6.050202 Автоматизація та комп'ютерно-інтегровані технології

#### **Варіант 1.**

##### **I. Reading Comprehension**

***1. Read the text and decide whether the statements are true (T) or false (F).***

***(15 points)***

#### **What Viruses Do?**

Some viruses are programmed specifically to damage the data on your computer by corrupting programs, deleting files, or erasing your entire hard disk. Many of the currently known Macintosh viruses are not designed to do any damage. However, because of bugs (programming errors) within the virus, an infected system may behave erratically.

#### **What Viruses Don't Do?**

Computer viruses don't infect files on write-protected disks and don't infect documents, except in the case of Word macro viruses, which infect only documents and templates written in Word 6.0 or higher. They don't infect compressed files either. However, applications within a compressed file could have been infected before they were compressed. Viruses also don't infect computer hardware, such as monitors or computer chips; they only infect software.

In addition, Macintosh viruses don't infect DOS-based computer software and vice versa. For example, the infamous Michelangelo virus does not infect Macintosh applications. Again, exceptions to this rule are the Word and Excel macro viruses, which infect spreadsheets, documents and templates, which can be opened by either Windows or Macintosh computers.

Finally, viruses don't necessarily let you know that they are there even after

they do something destructive.

1. Some viruses are programmed to store the date on your computer.
2. Many of currently known Macintosh viruses are designed to do any damage.
3. Computer viruses don't infect files on write-protected disk and don't infect documents written in Word 6.0
4. Viruses also infect computer hardware, such as monitor or computer chips
5. Viruses don't necessarily let you know that they are there.

***2. Read the text and choose the correct answer to the question. (15 points)***

A laptop computer, also known as a notebook computer, is a small personal computer designed for mobile use. A laptop integrates all of the typical components of a desktop computer, including a display, a keyboard, a pointing device (a touchpad also known as a trackpad, or a pointing stick) and a battery into a single portable unit. The rechargeable battery is charged from an AC/DC adapter and has enough capacity to power the laptop for several hours.

A laptop is usually shaped like a large notebook with thickness of 0.7 1.5 inches (IN 3 X mm) and dimensions ranging from 10x8 inches (27x22ctn, 13" display) to 15x11 inches (39x28cm, 17" display) and up. Modern laptops weigh 3 to 12 pounds (1.4 to 5.4 kg), and some older laptops were even heavier. Most laptops are designed in the flip over factor to protect the screen and the keyboard when closed.

Originally considered "a small niche market" and perceived as suitable for "specialized field applications" such as "the military, the Internal Revenue Service, accountants and sales representatives", battery-powered portables had just 2% worldwide market share in 1986. But today, there are already more laptops than desktops in the enterprise and, according to a forecast by Intel, more laptops than desktops will be sold in the general PC

market as soon as 2009.

1. What is a laptop designed for?
  - a) for fun
  - b) for mobile use
  - c) for work only in the office
2. How long can the rechargeable battery power the laptop?
  - a) for two days
  - b) for several hours
  - c) for several months
3. Why are the most laptops designed in the flip?
  - a) to protected the screen and the keyboard when closed
  - b) to protected the user when closed
  - c) to protect the furniture
4. When was a "personal, portable information manipulator" envisioned?
  - a) in 1972
  - b) in 1970
  - c) in 1968
5. When was the Epson HX-20 announced?
  - a) in 1981
  - b) in 1972
  - c) in 1968

***3. Read the text and choose the word that fits each space. Circle the correct letter (A, B, C) for each sentence. (20 points)***

### **Operating Systems**

An operating system (OS) is a set of programs that manage computer **1** . resources and provide common services for application software. The operating

system is the most important type of **2)** . . . in a computer system. A user cannot run an application program on the computer without an operating system, unless the application program is self booting.

Time-sharing operating systems schedule tasks for efficient use of the system and may also include accounting for cost allocation of processor time, mass storage, printing, and other **3)** . . . .

For hardware functions such as input and output and memory allocation, the operating system acts as an intermediary between application programs and the computer hardware, although the application **4)** . . . is usually executed directly by the hardware and will frequently call the OS or be interrupted by it. Operating systems are found on almost any device that contains a computer -from cellular phones and video **5)** . . . consoles to supercomputers and web-servers.

Examples of popular modern operating systems include Android, iOS, Linux, MacOS X, all of which have their roots in Unix, and Microsoft Windows.

	A	B	C
1)	software	hardware	memory
2)	system software	system hardware	application software
3)	devices	series	resources
4)	code	software	program
5)	film	player	game

## II. Grammar Comprehension

**4. Choose the answer that best fits each space. Circle the correct letter (a, b, c) for each sentence. (20 points)**

- 1) The idea ... this new substance didn't leave us.
  - a) use
  - b) using

- c) to use
- 2) It didn't . . . them long to get interested in this branch of science
- a) make
  - b) take
  - c) wait
- 3) It was of great surprise for us. . .that 10-step reaction did not give the result we expected
- a) realize
  - b) to realize
  - c) to be realized
- 4) We know television... widely . . ., in every day life and in industry.
- a) to be used
  - b) to have used
  - c) has used
- 5) If they used these materials, the cost of production would not...expensive.
- a) have been
  - b) be
  - c) had been
- 6) The application of this device is certain ... better results
- a) to give
  - b) have given
  - c) having given
- 7) Were I in your place, I should . . . the properties of these synthetic materials before using them
- a) had investigated
  - b) have investigated
  - c) investigate
- 8) The atom is known . . . rays of different length
- a) emitting

b) emit

c) to emit

9) The student ought . . . careful while working with this instrument. Now the instrument is broken.

a) to have been

b) to be

c) has been

10) If you use such fibres, the materials . . . durable

a) would be

b) will be

c) will have been

### III. Grammar in Use

**5. Translate the sentences from English into Ukrainian. Choose the correct variant (A, B, C). (15 points)**

1. Her friend is much spoken about because she is the cleverest student of their group.

A. Її подруга багато про неї говорить, тому що вона була найрозумнішою зі студентів їх групи.

B. Про її подругу багато говорили тому, що вона була самою розумною студенткою в групі.

C. Про її подругу багато говорять, тому що вона є самою розумною в їх групі.

2. He was sure his friend would make much progress in English.

A. Він впевнений, що його друг досягне значного успіху в вивченні англійської мови.

B. Він був впевнений, що його друг досягне прогресу у вивченні

англійської мови.

C. Він був впевнений, що його друг досягне успіху в вивченні англійської мови.

3. I don't want to be told about that terrible event.

A. Я не хочу розповідати про цей жахливий випадок.

B. Мені не хочеться розповідати про цей жахливий випадок.

C. Я не хочу, щоб мені розповідали про цей жахливий випадок.

4. She was happy to find the necessary computer program.

A. Вона була рада знайти необхідну комп'ютерну програму.

B. Вона зраділа, що знайшла необхідну комп'ютерну програму.

C. Вона була рада знайти необхідну їй програму.

5. We all agree that it is better late than never.

A. Ми всі згодні, що краще пізно, ніж ніколи.

B. Ми всі були згодні, що краще пізно, ніж ніколи.

C. Ми вважали, що краще пізно, ніж ніколи.

**6. Translate the sentences from Ukrainian into English. Choose the correct variant (A, B, C). (15 points)**

1) Як правило, ці предмети не вивчаються в нашому університеті.

a) As a rule these subjects won't be studied in our University.

b) These subjects are not usually studied at our University.

c) These subjects can't be studied in our University.

2) Скільки тобі потрібно витратити часу, щоб вирішити цю проблему.

a) How much time will it take you to solve this problem?

b) How long does it take you to solve this problem?

c) How much did it take you to solve this problem?

3) На вашому місці я купив би нове програмне забезпечення.

a) I shall buy new software, if I was you.

b) If I were you I should buy new software.

c) If I was you I would buy new software.

4) Відомо, що наш професор - дуже талановитий вчений.

a) Our professor is known that he is a very talented scientist.

b) Our professor was known to be a very talented scientist.

c) Our professor is known to be a very talented scientist.

5) Я радий, що побачив вас у бібліотеці.

a) I was glad to see you in the library.

b) I am glad to have seen you in the library.

c) I am glad to see you in the library.

## **Вариант 2.**

### **I. Reading Comprehension**

**1. Read the text and decide whether the statements are true (T) or false (F).  
(15 points)**

#### **What is Computer Virus?**

A virus is a piece of software designed and written to adversely affect your computer by altering the way it works without your knowledge or permission. In more technical terms, a virus is a segment of program code that implants itself to one of your executable files and spreads systematically from one file to another. Computer viruses do not spontaneously generate: They must be written and have a specific purpose. Usually a virus has two distinct functions:

- Spreads itself from one file to another without your input or knowledge. Technically, this is known as self-replication and propagation.
- Implements the symptom or damage planned by the perpetrator. This could include erasing a disk, corrupting your programs or just creating havoc on your computer. Technically, this is known as the virus payload, which can be benign or malignant at the whim of the virus creator.

A benign virus is one that is designed to do no real damage to your computer. For example, a virus that conceals itself until some predetermined date or time and then does nothing more than display some sort of message is considered benign.

A malignant virus is one that attempts to inflict malicious damage to your computer, although the damage may not be intentional. There are a significant number of viruses that cause damage due to poor programming and outright bugs in the viral code. A malicious virus might alter one or more of your programs so that it does not work, as it should. The infected program might terminate abnormally, write incorrect information into your documents. Or, the virus might alter the directory information on one of your system area.

1. A virus is not a piece of software designed and written to adversely affect your computer
2. In more technical terms, a virus is a segment of program code
3. Computer viruses spontaneously generate
4. A benign virus is one that is designed to do no real damage to your computer.
5. A malicious virus might alter one or more of your programs, so that it doesn't work, as it should.

***2. Read the text and choose the correct answer to the question. (15 points)***

**Different types of portable computers**

They are not the notebooks that you used to write in when you were little bambino, but simply a rather new name for laptops. Earlier, when the laptops were introduced in 1983, the term 'laptop' was used to describe them. Notebooks are nothing but laptops with a new name. However, they are smaller models than laptops. Now days, laptops and notebooks are both common terms as all the brands are coming up with small, compact, and portable PCs that weigh anywhere between one to three kilograms. Just like PCs, laptops are capable of performing the same tasks but they can be less powerful than a PC.

Ultra-portables are the smallest one of the laptop family. These are use almost exclusively by the business traveler set.

Thin and Light Notebooks are somewhat larger than Ultra-portables and supports a larger screen with more functionality that Ultra-portables.

Desktop Replacements are perhaps the largest of the notebook families. These are more powerful than the previous counterparts we talked about but provide space for more powerful components and the largest screen. Desktop replacement has a much shorter battery life span than any other laptop computers.

Palmtops are also known as a Handheld PC or then H/PC for short. This

term has been coined by Microsoft, which suggests that palmtops are essentially smaller than the standard notebooks or PCs.

PDA's or Personal Digital Assistants are basically devices that are handheld. They were originally designed as personal organizers but as the years went by their uses increased to a great extent and are usually characterized with the presence of a touch screen. The PDA's are typically used for calculating, playing computer games, sending and receiving e-mails, video recording, used as an address book, clock, calendar, radio or a stereo, and a spreadsheet, accessing the Internet, recording notes and GPS. The newer version of PDA's can be used as mobile phones or smart phones as they are commonly called. They have audio capabilities and color screens and is able to access the Internet, intranets and extranets via the Wi-Fi or Wireless Wide-Area Networks.

1. What is the weight of notebooks?
  - a. four kilograms
  - b. between one to three kilograms
  - c. between one to five kilograms
2. How powerful can the laptops be?
  - a. more powerful than PC
  - b. as powerful as PC
  - c. less powerful than PC
3. What are the smallest of the laptop family?
  - a. notebooks
  - b. ultra-portables
  - c. desktop replacements
4. What devices were originally designed as personal organizers?
  - a. palmtops
  - b. desktop replacements
  - c. PDAS

5. What devices are also known as a Handheld PC?

- a. Palmtops
- b. Notebooks
- c. PDAS

**3. Read the text and choose the word that fits each space. Circle the correct letter (A,B,C) for each sentence. (20 points)**

### Mac OS

Mac OS is a series of **1)** . . .user interface-based **2)** . . .systems developed by Apple Inc. (formerly Apple Computer, Inc.) for their Macintosh line of computer systems. The Macintosh user experience is credited with popularizing the graphical user interface. The original form of what Apple would later name the "Mac OS" was the integral and unnamed system **3)** . . . first introduced in 1984 with the original Macintosh, usually referred to simply as the System software.

From the beginning, Apple deliberately sought to minimize by design the user's conceptual awareness of the operating system as such. Tasks that on other products required a more explicit working knowledge of an operating system would on a Macintosh be accomplished by intuitive mouse gestures and manipulation of graphical control panels. The intention was that the **4)** . . . would thus be more user-friendly and so more easily mastered. This would differentiate it from devices using other operating environments, such as MS-DOS machines, which were more technically challenging to operate.

The core of the system software was held in ROM, with updates (which would override ROM-resident portions in RAM) typically provided free of charge by Apple dealers on **5)** . . . disk. The user's involvement in an upgrade of the operating system was also minimized to running an installer, or simply replacing system files, the simplicity of which again differentiated the product from other offerings.

- |                |             |            |
|----------------|-------------|------------|
| 1. A-graphical | B-digital   | C-internal |
| 2. A-computer  | B-operating | C-unnamed  |
| 3. A-software  | B-hardware  | C-block    |
| 4. A-device    | B-machines  | C-product  |
| 5. A-floppy    | B-hard      | C-simply   |

## II. Grammar Comprehension

**4. Choose the answer that best fits each space. Circle the correct letter (a, b, c) for each sentence. (20 points)**

- 1) The student saw the device . . . to operate.
  - a) to begin
  - b) begin
  - c) have begun
- 2) Unless we thought new research . . . necessary, we wouldn't be spending money on it.
  - a) are
  - b) have been
  - c) were
- 3) This metal is too brittle ... used in our case.
  - a) to be
  - b) being
  - c) for being
- 4) There appear ... no exceptions in the data in table I.
  - a) to be
  - b) being
  - c) be

- 5) We know Popov ... the radio in 1895
- a) to have invented
  - b) has invented
  - c) has to invent
- 6) He made me ... this work.
- a) to do
  - b) doing
  - c) do
- 7) Whether you understand it or not doesn't ... at the moment.
- a) cater
  - b) scatter
  - c) matter
- 8) We knew that he ... translating a text.
- a) is
  - b) was
  - c) were
- 9) We wanted him ... part in the conference.
- a) took
  - b) to take
  - c) take
- 10) Had they known about this new discovery earlier, they would ... the method in their investigation.
- a) apply
  - b) had applied
  - c) have applied

### III. Grammar in Use

**5. Translate the sentences from English into Ukrainian. Choose the correct variant (A,B,C). (15 points)**

- 1) He must be working in the laboratory now.
  - a) Він напевно зараз працює в лабораторії.
  - b) Він повинен зараз працювати у лабораторії.
  - c) Він обов'язково буде працювати в лабораторії.
- 2) He found the book very interesting.
  - a) Він знайшов дуже цікаву книжку.
  - b) Книга йому дуже сподобалась.
  - c) Він загубив дуже цікаву книжку.
- 3) It was raining all day long and we had to put off our meeting.
  - a) Увесь день йшов дощ і ми вимушені були відкласти нашу зустріч.
  - b) Нам довелось продовжити збори, оскільки весь день йшов дощ.
  - c) Під вечір дощ вщух і ми вирішили знову зустрітися.
- 4) The head of the foreign delegation was warmly greeted by the students.
  - a) Студенти були раді вітати керівника іноземної делегації.
  - b) Керівника іноземної делегації тепло привітали студенти.
  - c) Керівнику іноземної делегації було надано теплу зустріч.
- 5) He doesn't want to be asked about his exams.
  - a) Він не хоче розпитувати про екзамени.
  - b) Він не хоче знати результати екзаменів.
  - c) Він не хоче, щоб його розпитували про його екзамени.

**6. Translate the sentences from Ukrainian into English. Choose the correct variant (A, B, C). (15 points)**

- 1) Мати завжди хотіла, щоб її син став інженером.
  - a) The mother was wanting her son to be an engineer.
  - b) The mother always wishes her son to be an engineer.
  - c) The mother had always wanted her son to be an engineer.
- 2) Ділові листи, як правило, не пишуться розмовним стилем.
  - a) Business letters are not usually written in conversational style.
  - b) Business letters should not be written in conversational style.
  - c) Business letters won't be written in conversational style.
- 3) Вона говорить, що їй подобається класична музика.
  - a) She has said she enjoyed classical music.
  - b) She says she is fond of classical music.
  - c) She said she enjoyed classical music.
- 4) На вашому місці я би пішов на лекцію.
  - a) I have to go to the lecture if I were you.
  - b) I shall go to lecture if I am you.
  - c) I should go to the lecture if I were you.
- 5) Скільки треба часу, щоб доїхати до Університету?
  - a) How long does it take to get to the University?
  - b) How much time will it take to reach the University?
  - c) How many hours does it take to get the University?

### **Вариант 3.**

#### **I. Reading Comprehension**

***1. Read the text and decide whether the statements are true (T) or false (F).  
(15 points)***

#### **File infectors**

These are viruses that attach themselves to (or replace) .COM and .EXE files, although in some cases they can infect files with extensions .SYS, .DRV, .BIN, .OVL and .OVY. With this type of virus, uninfected programs usually become infected when they are executed with the virus in memory. In other cases they are infected when they are opened (such as using the DOS DIR command) or the virus simply infects all of the files in the directory is run from (a direct infector).

There are three groups of file infectors. Viruses of the first group are called overwriting viruses because they overwrite their code into infected file erasing contents. But these viruses are primitive and they can be found very quickly.

Other group is called parasitic or cavity viruses. Infected file is capable of work fully or partly but contents of last one are changed. Viruses can copy itself into begin, middle or end of a file. They record their code in data known not to be used.

Third group is called companion viruses. They don't change files. They make double of infected file so when infected file is being started a double file becomes managing, it means virus. For example companion viruses working with DOS use that DOS firstly runs COM. file and after if this file is not found runs EXE. file. Viruses make double file with a same name and with extension COM and copies itself in this file. During start of infected file DOS runs a COM. file with a virus firstly and then a virus starts an EXE. file.

Sometime companion viruses rename file will be infected and record their code in a double file with old name. For example the file XCOPY.EXE is renamed

into XCOPY.EXD and virus record itself in file XCOPY.EXE. When this file is started computer runs a virus code firstly and after virus starts original XCOPY, saved as XCOPY.EXD. Viruses like this were found not only in DOS. They were found in Windows and OS/2.

It is not only one way to make double files. For example there is subgroup of companion viruses called path-companion viruses. They use special feature of DOS - PATH: hierarchical record of file location. Virus copies itself in file with the same name but situated one level higher. In this case DOS will find file with virus.

1. With this type if virus, uninfected programs usually become infected when they are executed with the virus in memory.
2. In other cases they are not infected when they are opened.
3. Viruses of the first group are primitive and they can't be found very quickly.
4. Parasitic or cavity viruses can copy itself into begin, middle or end of a file.
5. Companion viruses don't make double file with some name and with extension COM.

***2. Read the text and choose the correct answer to the question. (15 points)***

### Tablet PCs

A tablet PC is basically a slate-shaped notebook with a digitizing tablet technology or touch screen that enables the operator to use a digital pen or stylus instead of a mouse or a keyboard. Tablet PCs are generally used when the normal notebooks are not practical and bulky to use. The different form of tablet PCs are slates, thin client slates, convertibles and hybrids. There are many advantages of using a tablet PC. Since you will be using a digital pen to operate it, it is convenient to take down handwritten notes and diagrams at a conference or a class. With its handwriting recognition in place, you are even able to make an automatic

search for the notes.

A portable computer is a computer that is designed to be moved from one place to another and includes a display and keyboard. Portable computers, by their nature, are generally microcomputers. Portable computers, because of their size, are also commonly known as 'Lunchbox' or 'Luggable' computers. They can also be called a 'Portable Workstation' or 'Portable PC'.

The principal advantage of a portable computer versus a laptop or other mobile computer is the use of standard motherboards or backplanes providing plug-in slots for add-in cards. This allows mission specific cards such as test, A/D, or communication protocol (IEEE-488, 1553) to be installed. Portable computers also provide for more disk storage by using standard 3-1/2" drives and providing for multiple drives.

The IBM 5100 Portable Computer, introduced in September 1975, was perhaps the first portable computer. IBM referred to its PALM processor as a microprocessor, though they used that term to mean a processor that executes microcode to implement a higher-level instruction set, rather than its conventional definition of a complete processor on a single silicon integrated circuit.

Xerox Note Taker, developed in 1976 at Xerox PARC, was a precursor to later portable computers from Osborne Computer Corporation and Compaq, though it remained a prototype and did not enter production.

1. What does a tablet PC enabled the operator to use?
  - a) a mouse
  - b) a keyboard
  - c) a digital pen or stylus
2. When is the tablet PC generally used?
  - a) when the normal notebooks are expensive
  - b) when the normal notebooks are not practical and bulky to use
  - c) when the normal notebooks are practical and un-bulky to use

3. What are you able to make with are tablet PCs's handwriting recognition in place?
  - a) to make a report
  - b) to do your home-task
  - c) to make an automatic search for the notes
4. What are the portable computers by their nature?
  - a) mainframe computers
  - b) macro computers
  - c) microcomputers
5. What is the principal advantage of a portable computer versus of a laptop?
  - a) the use of standard motherboards or backplanes
  - b) the use of special motherboards
  - c) the use of disk storage

**3. Read the text and choose the word that fits each space. Circle the correct letter (A, B, C) for each sentence. (20 points)**

### Linux

Linux is a Unix-like computer operating system assembled under the model of free and open source software development and distribution. The defining **1)** . . of any Linux system is the Linux kernel, an operating system kernel first released October 5, 1991 by Linux Torvalds. Linux system distributions may vary in many details of system operation, configuration, and software package selections.

Linux runs on a wide variety of computer **2)** . . ., including mobile phones, tablet computers, network routers, televisions, video game consoles, desktop computers, mainframes and supercomputers. Linux is a leading server operating system, and runs the 10 fastest **3)** . . . in the world. In addition, more than 90% of today's supercomputers run some variant of Linux.

The **4)** . . . of Linux is one of the most prominent examples of free and open

source software collaboration: the underlying source code may be used, modified, and distributed—commercially or non-commercially—by anyone under licenses such as the GNU General Public License. Typically Linux is packaged in a format known as a *Linux distribution* for 5) . . . and server use. Some popular mainstream Linux distributions include Debian (and its derivatives such as Ubuntu), Fedora and open SUSE. Linux distributions include the Linux kernel, supporting utilities and libraries and usually a large amount of application software to fulfill the distribution's intended use.

	A	B	C
1)	defining component	defining configuration	package selections
2)	software	hardware	memory
3)	portable computers	minicomputers	supercomputers
4)	invention	development	distribution
5)	laptop	desktop	notebook

## II. Grammar Comprehension

**4. Choose the answer that best fits each space. Circle the correct letter (a, b, c) for each sentence. (20 points)**

- Simple as it seemed at its discovery, this element . . . to be very complex.
  - is known
  - known
  - knew
- The procedure ... applicable whether the product is pure or contaminated.
  - was
  - is
  - being
- The results obtained ... to be satisfactory.
  - consider

- b. are considering
  - c. are considered
4. We knew that he ... study English,
- a. will
  - b. shall
  - c. would
5. . . . the temperature increased, the velocity of the molecular motion would also be increased.
- a. Were
  - b. Being
  - c. Are
6. Galileo proved that the earth ... round the sun
- a. moves
  - b. moved
  - c. is moving
7. ... the atmosphere no life would be possible on the Earth.
- a. But for
  - b. For but
  - c. But
8. This problem seems ... very complicated.
- a. be
  - b. to be
  - c. is
9. . . . the book, I gave it to my friend.
- a. Reading
  - b. Having read
  - c. Have read
10. She hates ... interrupted
- a. being

- b. to be
- c. been

### III. Grammar in Use (10 points)

#### **5. Translate the sentences from English into Ukrainian. Choose the correct variant (A, B, C). (15 points)**

- 1) I guess you are right in a way
  - a) Я здогадуюсь, що ви стоїте справа на дорозі.
  - b) Я здогадався, що ви в чомусь маєте рацію.
  - c) В цьому напрямку ви маєте рацію, я вважаю.
- 2) In American high school students may choose subjects.
  - a) В Америці студенти вузів можуть вибирати навчальні дисципліни.
  - b) Студенти вибирають дисципліни у вищій школі США.
  - c) Студенти американських вузів можуть вибирати, що їм вивчати.
- 3) Students are placed in groups according to their ability.
  - a) Студентів зачисляють до груп, щоб розвинути їх здібності.
  - b) Студентів зачислили до груп, щоб розвинути їх здібності.
  - c) Студентів зачисляють до груп, залежно від їх здібностей.
- 4) After that I'll show you round the institute.
  - a) Після того ми подивилися інститут.
  - b) Після того ми підемо навколо інституту.
  - c) Після того я покажу вам інститут.
- 5) I came across the term I didn't know.
  - a) Мені зустрівся термін, який я не знаю.
  - b) Я не знав, що я натрапив на той термін.
  - c) Я проходив через умови, які не знаю.

**6. Translate the sentences from Ukrainian into English. Choose the correct variant (A, B, C). (15 points)**

- 1) Що до мене, то я віддаю перевагу професійному мистецтву.
  - a) To my mind professional art is the best.
  - b) As for me I like professional art more.
  - c) I think that professional art is better.
- 2) Неможливо відповісти на таке запитання двома словами.
  - a) You can not answer such a question in two words.
  - b) It is impossible to answer this question easily.
  - c) Two words can not be the answer to this question.
- 3) Я приїхав тільки два тижня тому.
  - a) I arrived only a fortnight ago.
  - b) I came only two weeks ago.
  - c) I returned two days ago.
- 4) Чи вам сподобалось у нас?
  - a) Did you like with us?
  - b) How did you like to visit us?
  - c) Have you enjoyed your stay here?
- 5) Я з нетерпінням чекав на зустріч з вами.
  - a) I can not wait to meet you.
  - b) I with impatience was waiting for meeting with you.
  - c) I've been looking forward to meeting with you.

## **Вариант 4.**

### I Reading Comprehension

***1. Read the text and decide whether the statements are true (T) or false (F). (15 points)***

#### ***Boot Sector Infectors***

Every logical drive, both hard disk and floppy, contains a boot sector.

This is true even of disks that are not bootable. This boot sector contains specific information relating to the formatting of the disk, the data stored there and also contains a small program called the boot program (which loads the DOS system files). The boot program displays the familiar "Non-system Disk or Disk Error" message if the DOS system files are not present. It is also the program that gets infected by viruses. You get a boot sector virus by leaving an infected diskette in a drive and rebooting the machine. When the boot sector program is read and executed, the virus goes into memory and infects your hard drive. Remember, because every disk has a boot sector, it is possible (and common) to infect a machine from a data disk. NOTE: Both floppy diskettes and hard drives contain boot sectors.

The first physical sector of every hard disk (Side III, Track III, Sector 1) contains the disk's Master Boot Record and Partition Table. The Master Boot Record has a small program within it called the Master Boot Program, which looks up the values in the partition table for the starting location of the bootable partition, and then tells the system to go there and execute any code it finds. Assuming your disk is set up properly, what it finds in that location (Side 1, Track III, Sector 1) is a valid boot sector.

On floppy disks, these same viruses infect the boot sectors. You get a Master Boot Record virus in exactly the same manner you get a boot sector virus — by leaving an infected diskette in a drive and rebooting the machine. When the boot sector program is read and executed, the virus goes into memory and infects the

MBR of your hard drive. Again, because every disk has a boot sector, it is possible (and common) to infect a machine from a data disk.

1. Every logical drive both hard disk and floppy contains a boot sector.
2. The boot program displays the unfamiliar "Non-system Disk or Disk Error" message if the DOS system files are not present.
3. You get a boot sector virus by leaving an infected diskette in a drive and rebooting the machine.
4. The first physical sector of every disk (Side III, Tack III, Sector I) contains the disk's Master Boot Record and Partition Table.
5. When the boot sector program is read and executed, the virus does not go into memory.

***2. Read the text and choose the correct answer to the question. (15 points)***

An early portable computer was manufactured in 1979 by GM Research, a small company in Santa Monica, California. The machine which was designed and patented (US Patent No. 4,294,496) by James Murez. It was called the Micro Star and later changed the name to The Small One. Although Xerox claims to have designed the first such system, the machine by Murez predated anything on the market or that had been documented in any publication at the time - hence the patent was issued. As early as 1979 the U.S. Government was contracting to purchase these machines. Other major customers included Sandia labs, General Dynamics, BBN (featured on the cover of their annual report in 1980 as the C.A.T. system) and several dozen private individuals and companies around the world. In 1979, Adam Osborne viewed the machine along with several hundred other visitors at the first computer show that was sponsored by the IEEE Westec in Los Angeles. Later that year the machine was also shown at the first COMDEX show.

The first mass-produced microprocessor-based portable computer was the

Osborne 1, developed by Osborne, which owed much to the NoteTaker's design. Another early portable computer released in 1982 was the Kaypro. In January 1983, the first IBM PC compatible portable computer (and indeed the first 100% IBM PC compatible, or 'clone' of any kind) was the Compaq Portable. The first full-color portable computer was the Commodore SX-64 in January 1984. Apple Inc. introduced a portable Apple IIe in April 1984, but would not release a Macintosh Portable until 1989, though the original Macintosh was by its compact design, technically a portable.

The term portable computer is now almost exclusively used to refer to portable computers that are larger than a laptop, often use conventional parts such as an ATX motherboard and PS/2 style power supply and usually do not run on batteries. Smaller portable computers are also known as mobile computers.

- 1) When was an early portable computer manufactured by GM Research?
  - a) in 1980
  - b) in 1979
  - c) in 1978
- 2) Who viewed the machine at the first computer show in Los Angeles?
  - a) Adam Osborne
  - b) Mures
  - c) Xerox
- 3) What portable computer was released in 1982?
  - a) Micro Star
  - b) Kaypro
  - c) Osborne 1
- 4) What kind of computer was the Commodore SX-64?
  - a) the second portable computer
  - b) the first full-color portable computer
  - c) the first non-color portable computer

- 5) When did Apple release a Macintosh Portable?
- a) in 1984
  - b) in 1983
  - c) in 1989

**3. Read the text and choose the word that fits each space. Circle the correct letter (A, B, C) for each sentence. (20 points)**

### WAN

When LAN is restricted to a building or a few **1)** . . . , WAN can basically serve as a backbone for connecting many office networks within a geographical area together.

When we talk about LAN and MAN, there are certain restrictions in terms of the network **2)** . . . However, in some cases, boundaries for networks are not feasible when long distance **3)** . . . is necessary. In case of WAN or Wide Area Network, it spans a very large geographical area as in a continent or country.

Normally WAN's are just physical extensions of LAN's. They are built using private leased **4)** . . . Their huge coverage area makes the cost go higher and transmission speeds to drop down. What companies do to **5)** . . . spending too much money and time in managing individual leased line's is they deploy VPN or Virtual Private Network over internet connections which are cheap. Note that the routers and switches you use must be capable of handling VPN traffic.

	A	B	C
1)	minutes	miles	kilometers
2)	boundary	size	system
3)	Link	communication	call
4)	stations	calls	lines
5)	to avoid	to share	to have

## II. Grammar Comprehension

**4. Choose the answer that best fits each space. Circle the correct letter (a, b, c) for each sentence. (20 points)**

- 1) He wants this work ... on time
  - a) to be done
  - b) is done
  - c) be done
- 2) Now much effort is ... given to find the most efficient means of generating electricity
  - a) been
  - b) being
  - c) be
- 3) ... with books and scientific equipment the young scientist began experimenting.
  - a) Supplying
  - b) Supply
  - c) Supplied
- 4) Under these conditions the output of the plant is likely ...
  - a) increasing
  - b) to increase
  - c) increase
- 5) The fibers produced by our shop are of ... quality
  - a) improving
  - b) improve
  - c) improved
- 6) While ... his experiment the lab assistant put down all the necessary data.
  - a) makes

- b) making
  - c) made
- 7) ... repaired, the engine began operating better.
- a) having
  - b) having been
  - c) has
- 8) With no free oxygen and little, if any, the Mars still appears ... some evidence of life
- a) has
  - b) to have
  - c) have
- 9) The plant being built in our district ... radio sets
- a) would produce
  - b) shall produce
  - c) will produce
- 10) Computing equipment is considered ... production process more effective.
- a) to make
  - b) made
  - c) to be made

### III. Grammar in Use

***5. Translate the sentences from English into Ukrainian. Choose the correct variant (A, B, C). (15 points)***

- 1) He was glad to have worked with him.
- a) Він був радий, що працював з ним.
  - b) Він був радий, що працює з ним.
  - c) Він радий працювати з ним.

- 2) He wanted the article to be translated immediately.
- a) Він хотів перекласти статтю негайно.
  - b) Він хотів, щоб статтю було перекладено негайно.
  - c) Він хотів, щоб ми переклали статтю негайно.
- 3) In his letter he informed that he would come to visit us if he passed his exams successfully.
- a) В своєму листі він повідомив, що приїде відвідати нас, якщо успішно складе екзамени.
  - b) В своєму листі він повідомив, що хоче відвідати нас, якщо успішно складе екзамени.
  - c) В своєму листі він повідомив, що хотів би відвідати нас, якщо успішно складе екзамени.
- 4) She may be waiting for you downstairs.
- a) Вона може почекати тебе внизу.
  - b) Можливо, вона чекає тебе внизу.
  - c) Можливо, вона чекала тебе внизу.
- 5) There was a computer laboratory on the second floor.
- a) Комп'ютерна лабораторія знаходиться на 3 поверсі.
  - b) На 3 поверсі була комп'ютерна лабораторія.
  - c) На 2 поверсі була комп'ютерна лабораторія.

**6. Translate the sentences from Ukrainian into English. Choose the correct variant (A, B, C). (15 points)**

1. Тебе хоче бачити професор.
- a. The professor wants to see you.
  - b. A professor wants to see you.
  - c. That professor wants to see you.
2. Студентам дозволено було користуватись словниками.

- a. The students are allowed to read dictionaries.
  - b. The students were allowed to use dictionaries.
  - c. They allowed the students to use dictionaries.
3. На твоєму місці я б купив квиток заздалегідь.
- a. In your place I shall have to buy a ticket in advance.
  - b. In your place I shall buy a ticket in advance.
  - c. If I were you I should buy a ticket in advance.
4. Вона зможе виконати цю роботу наступного тижня.
- a. She can do this work next week.
  - b. She will be able to do this work next week.
  - c. She will do this work next week.
5. Ти можеш взяти з полиці будь-яку книгу.
- a. You may take some book from the shelf.
  - b. You may take a book from the shelf.
  - c. You may take the book from the shelf.

## **Вариант 5.**

### **I. Reading Comprehension**

***1. Read the text and decide whether the statements are true (T) or false (F). (15 points)***

#### ***Multi-partite viruses***

Multi-partite viruses are a combination of the viruses listed above. They will infect both files and MBRs or both files and boot sectors. These types of viruses are currently rare, but the number of cases is growing steadily.

Until recently, the macro languages included with most applications were not powerful or robust enough to support writing an effective virus. However, many of the more advanced applications that are being developed today include built-in programming capabilities that rival some of the larger development packages. This has recently been demonstrated by the various strains of Microsoft Word viruses, including the so-called Word Concept and Word Nuclear viruses. These viruses transport themselves through Microsoft Word documents. When opened in Word, they perform various actions, including spreading themselves into the user's installation of Word, thus preparing to infect all future documents on the system.

An additional concern is that macro viruses can be cross-platform. The Word Concept virus has the claim to fame of being the first prominent cross-platform virus, because it can infect both Windows and Macintosh systems.

Because most application macro languages support passing execution to an external shell, such as COMMAND.COM or CMD.BXE, the power of the macrovirus is not limited to the constraints of the macro language itself.

1. Multi-partite viruses are a combination of the viruses which will infect both files and MBRs or both files and boot sectors.
2. Until recently the macro languages included with most applications were

powerful or robust enough to support writing an effective virus.

3. Word Concept and Word Nuclear viruses transport themselves through Microsoft word documents.

4. The Word Nuclear virus can infect both Windows and Macintosh systems.

5. Because most application macro languages support passing execution to an external shell the power of the macro virus is not limited to the constraints of the macro language itself.

***2. Read the text and choose the correct answer to the question. (15 points)***

Computer virus

A computer virus is a computer program that can replicate itself and spread from one computer to another. The term "virus" is also commonly but erroneously used to refer to other types of malware, including but not limited to adware and spyware programs that do not have the reproductive ability. A true virus can spread from one computer to another (in some form of executable code) when its host is taken to the target computer; for instance because a user sent it over a network or the Internet or carried it on a removable medium such as a floppy disk, CD, DVD, or drive.

Viruses can increase their chances of spreading to other computers by infecting files on a network file system or a file system that is accessed by another computer.

As stated above, the term "computer virus" is sometimes used as a catch all phrase to include all types of malware, even those that do not have the reproductive ability. Malware includes computer viruses, computer worms Trojan horses, most root kits, spyware, dishonest adware and other malicious and unwanted software, including true viruses. Viruses are sometimes confused with worms and Trojan horses, which are technically different. A worm can exploit security vulnerabilities to spread itself automatically to other computers through networks, while a Trojan

horse is a program that appears harmless but hides malicious functions. Worms and Trojan horses, like viruses, may harm a computer system's data or performance. Some viruses and other malware have symptoms noticeable to the computer user, but many are surreptitious or simply do nothing to call attention to themselves. Some viruses do nothing beyond reproducing themselves.

- 1) What is a computer virus?
  - a) a computer program
  - b) a floppy disk
  - c) a software
- 2) How can computer virus spread?
  - a) from one floppy disk to another
  - b) from one computer to another
  - c) from one hardware to another
- 3) What symptoms do some viruses and other hardware have?
  - a) unnoticeable to the computer user
  - b) noticeable to the computer user
  - c) known to the computer user
- 4) Which are worms and Trojan horses?
  - a) they are technically different
  - b) they are technically similar
  - c) they are easy used
- 5) How can a worm spread itself?
  - a) appears harmless
  - b) through motherboard
  - c) automatically to other computers through networks

**3. Read the text and choose the word that fits each space. Circle the correct letter (A,B,C) for each sentence. (20 points)**

### Wireless network

Probably the most widespread day-to-day example of use of **1)** . . . networks are sending and receiving calls on the go using a cellular device, emails, browsing the internet while on the move and so on. This is very important for business people as businesses need constant monitoring by key people.

Wireless Networks also work on a personal note. It is great for people like repair persons to keep **2)** . . . with home. Trucks and other such services can **3)** . . . with their parent organization for constant communication between them.

In any places where wired networking is not possible, wireless networks are the only **4)** . . . In most remote places, it is not feasible to establish a wired network and so wireless networks are implemented. It also helps in the case of disaster recovery where wired cabling has been destroyed. The rescue operations can keep other organizations and people updated about the stats.

Wireless network use a high-frequency radio technology similar to digital cellular and a low-frequency radio technology. Wireless LANs use spread spectrum technology **5)** . . . communication between multiple devices in a limited area. An example of open-standards wireless radio-wave technology is IEEE 802.11.

	A	B	C
1)	wire	Wireless	bare
2)	contact	Connection	link
3)	speak	Communicate	link
4)	decision	Solution	invention
5)	to enable	to have	to open

## II. Grammar Comprehension

**4. Choose the answer that best fits each space. Circle the correct letter (a, b, c) for each sentence. (20 points)**

- 1) The approach to this problem was ... to be wrong.
  - a) supposed
  - b) to suppose
  - c) supposing
- 2) Little though the probability of the Earth's ... as hot as the Sun may be, the possibility still exist.
  - a) became
  - b) become
  - c) becoming
- 3) . . . comparatively young, bionics has already great significance for communication technique.
  - a) Be
  - b) Being
  - c) Is
- 4) An increase in temperature can make an atom . . . an electron
  - a) to lose
  - b) lose
  - c) lost
- 5) ... of a gas laser one can perform a highly quality transmission of information.
  - a) Because
  - b) Due to
  - c) By means
- 6) To finish the construction of plant this year the worker are ... very quickly.
  - a) worked
  - b) to work

- c) work
- 7) Had I time tomorrow, I should ... to see this film.
- a) have gone
  - b) to go
  - c) go
- 8) Had he had time, he would ... you.
- a) help
  - b) have helped
  - c) had helped
- 9) Computers permit people ... such tasks that would otherwise be unthinkable
- a) to perform
  - b) performing
  - c) perform
- 10) ... computers work fast and correctly is very significant task
- a) Made
  - b) Making
  - c) To make

### III. Grammar in Use (10 points)

**5. Translate the sentences from English into Ukrainian. Choose the correct variant (A, B, C). (15 points)**

- 1) I don't want him to be interrupted.
- a) Я не хочу, щоб його перебивали.
  - b) Я не хочу, щоб його перебили.
  - c) Я не хочу перебивати його.
- 2) You are asked for by the man.
- a) Вас запитував цей чоловік.
  - b) Вас запитує цей чоловік.

- c) Вас просить цей чоловік.
- 3) It is this problem that the book deals with.
- a) Книга присвячена саме цій проблемі.
  - b) Книга присвячена цій проблемі.
  - c) Цю проблему він виклав у книзі.
- 4) This film is much spoken about.
- a) Поговоримо про цей фільм.
  - b) Цей фільм може багато сказати.
  - c) Про цей фільм багато говорять.
- 5) We thought that you were going to visit your friends.
- a) Ми думали, що ви збираєтесь відвідати своїх друзів.
  - b) Ми думали, що ви збирались відвідати своїх друзів.
  - c) Ми думали, що ви підете відвідати своїх друзів.

**6. Translate the sentences from Ukrainian into English. Choose the correct variant (A, B, C). (15 points)**

- 1) Вас слухають з великою увагою.
- a) You listen to with great attention.
  - b) You are listening to with great attention.
  - c) You are listened to with great attention.
- 2) Шкода, що я не інженер.
- a) I wish I were an enginner.
  - b) I wish I have been an enginner.
  - c) I wish to be an enginner.
- 3) Якби вчора була хороша погода, ми б пішли на прогулянку.
- a) If the weather were fine yesterday, we should go for a walk.
  - b) If the weather was fine yesterday, we should have gone for a walk.
  - c) If the weather was fine yesterday, we should go for a walk.

- 4) Відомо, що він відмінний програміст.
- a) He was known to be an excellent programist.
  - b) He will be known to be an excellent programist.
  - c) He is known to be an excellent programist.
- 5) Скільки потрібно витратити часу, щоб написати цю програму?
- a) How much time does it take to write this program?
  - b) How long did it take you to write this program?
  - c) How long does it take to write this program?

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