

# Medicine

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## PREFACE

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This module consists of two learning activities. The first one contains (a) some original texts written in English, (b) the translation of the original in Bahasa Indonesia, (c) exercises and formative test. The second one is more or less the same. The texts are slightly longer. They were taken from text book and encyclopedia.

After learning this module, you are expected to be able to translate some texts relating to medicine from English into Bahasa Indonesia.

Before you move on to Learning Activity 1, it is necessary for you to look at things you have to bear in mind when you are translating.

1. Be careful with word by word translation (literal translation).
2. Sometimes you need to translate words in the source language, sometimes you don't, for example, when they refer to names of companies, streets, islands, restaurants, etc.
3. Meaning in the source language should be conveyed accurately in the target language. This means that you have to try to avoid loss of meaning.
4. Meaning transferred into the target language are not restricted by vocabulary, grammatical forms of the source language.
5. Be aware of the term register (i.e. words, style, and grammatical features) you use.
6. Do not use 'everyday' language.
7. Your translation should only be based on meanings in the source language.

These aspects of translation are summarized in the band descriptors (see Appendix).

## LEARNING ACTIVITY 1

## English-Bahasa Indonesia Translation

*Read the following text very carefully to get a general impression of it, analyze it and then do the exercises that follow.*

**The Basic Principles of Drug Use**

The word 'drugs' has become associated with the abuse of mind-active drugs by certain groups of people. This misconception has resulted in a belief that medicines are good and drugs are bad; as one headmaster said to another, 'If I were not on tranquilizers I think I would have finished up on drugs'!

What then is a drug? A drug may be defined as any substance which can alter the structure or function of the living organism. Air pollutants, pesticides and vitamins, as well as virtually any chemical, may be regarded as drugs. Therefore, all medicines are drugs but not all drugs are medicines. Those drugs used as medicines have been selected because they possess or are thought to possess useful properties. They are used to relieve physical or mental symptoms, produce an altered state of mind, to treat, prevent or diagnose disease, and to prevent and end pregnancy.

The term drug does not indicate the way that it is used, whether medically or non-medically, legally or illegally, prescribed by a doctor or not. Similarly the term medicine does not refer specifically to a drug in liquid form; medicines can also be given as tablets, capsules, linctuses, inhalations, injections and so on.

Until this century most drugs used in treatment were obtained from plants. Now only a few drugs are obtained from a natural source and most of these are highly purified to remove any unwanted or harmful effects.

The action of a drug is a complex physical and chemical process which may take place locally in certain cells, organs or special tissues; or more generally upon most cells in the body. Some drugs act outside the cell, some on its surface and others within the cells. In most cases we still know very little about how drugs actually act within the body; but we know a good deal about the effects of that action.

The effect of most drugs is to stimulate or to depress certain biochemical or physiological functions within the body. Some, such as the antibiotics, have little effect on the body tissues; they have their effect instead on infecting organisms in those tissues.

The effects of drugs can be used to attack disease in several different ways. The most obvious example is the cure of disease by drugs such as antibiotics, which destroy the invading organisms that were making the patient ill. Drugs whose effects are used in this way are known as anti drugs. At the other end of the spectrum are the drugs whose effects used to prevent disease, such as the vaccines.

There are drugs which can be used to replace elements which body cannot take in or absorb - such as vitamin B<sub>12</sub> for the pernicious anemia. Finally, of course, there are drugs which are given because their effects relieve symptoms, and include everything from pain-killers and tranquillizers to antacids and decongestants.

Any drug produces some undesired effects along with the desired. For a drug to be a useful medicine, produce more beneficial than harmful effects. If it does not make you better at least it should not make you worse. Unfortunately many people recognize adverse drug effects (sometimes called 'toxic effects') in selves. Drugs are described by their most important useful effect, and, not occur to the patient that the morphine which he is considering only as a pain reliever, an analgesic, is causing his constipation or his sleepiness or his tight chest.

### **Methods of Administration**

There are four routes by which a drug may reach the body. Topic administration means applying the drug to the skin (e.g., ointments) or mucous membranes (e.g., vaginal tablets). Inhalation means simply that the drug is breathed into the lungs (e.g., aerosols for asthma, or general anesthetics). External administration means that the drug is given either by mouth or via the rectum. Parenteral administration means that the drug is injected. An injection may be made directly into a nerve for local effect, as when the dentist deadens a painful tooth, or it may be made into the spinal cord fluid as in spinal anaesthesia. Otherwise, injections are either intravenous -made into a vein; intramuscular - made into a muscle; or subcutaneous - made under the skin.

Some intramuscular injections are now given in prolonged release forms. These are called 'depot' injections; the drug is slowly absorbed from the

injection site over a period of hours, days or weeks - e.g., certain insulin's, steroids and tranquillizers. These 'depot' injections are not without long-term dangers and the convenience they offer to you or your doctor should not be allowed to mask these - if you are receiving one of these treatments you should carry an appropriate warning card with you.

Injections ensure that the drug reaches a high concentration in the blood very quickly. Intravenous injections may produce almost instantaneous effects, as mainlining drug abusers know. But no injection is without risk or difficulty. The drug has to be soluble; dosage must be very exact and the injection must take place under sterile conditions. Injections are therefore usually reserved for cases where a rapid effect is essential, or the drug is poorly absorbed from the gut or the patient cannot take it by mouth.

The taking of drugs by mouth is the most convenient way. Some drugs may be absorbed from the mouth itself (e.g., glyceryl trinitrate tablets are allowed to dissolve under the tongue for the treatment of angina). Most are swallowed and absorbed from the stomach and intestine. There are some disadvantages to taking drugs by mouth - some drugs may irritate the stomach and produce vomiting; others may be destroyed by the acid in the stomach or by digestive juices. These may need a special coating (called enteric coating) to protect them until they reach the intestine.

Taken from: *Medicines A guide for Everybody*. Peter Parish, Penguin Books Ltd, Hormonsworth, Middlessex, England 1980.

### ■ Task 1

*Now, learn the model answer below together with a short explanation about it.*

#### Model

*Source Language*

*Target Language*

#### Paragraph 1

The Basic Principles of Drug Use

The word 'drugs' has become associated with the abuse of mind-active drugs by certain groups of people. This misconception has

Prinsip-Prinsip Dasar Penggunaan Obat

Kata *drugs* selama ini diasosiasikan dengan penyalahgunaan obat yang menstimulasi kerja otak oleh sekelompok orang. Kesalahan pemahaman ini telah berakibat pada sebuah kepercayaan



to possess useful properties. They are used to relieve physical or mental symptoms, produce an altered state of mind, to treat, prevent or diagnose disease, and to prevent and end pregnancy.

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■ **Task 3**

*Translate the following extract into Bahasa Indonesia.*

*Source Language*

*Target Language*

**Paragraph 3**

The term drug does not indicate the way that it is used, whether medically or non-medically, legally or illegally, prescribed by a doctor or not. Similarly the term medicine does not refer specifically to a drug in liquid form; medicines can also be given as tablets, capsules, linctuses, inhalations, injections and so on.

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■ **Task 4**

*Translate the following extract into Bahasa Indonesia.*

*Source Language*

*Target Language*

**Paragraph 4**

Until this century most drugs used in treatment were obtained from plants. Now only a few drugs are obtained from a natural source and most of these are highly purified to remove any unwanted or harmful effects.

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	<b>KEY TO EXERCISE 1</b>
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■ Task 2

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 2</b></p> <p>What <u>then</u> is a drug? A drug may be defined as any substance which can alter the structure or function of the living organism. Air pollutants, pesticides and vitamins, as well as virtually any chemical, may be regarded as drugs. Therefore, all medicines are drugs but not all drugs are medicines. Those drugs used as medicines have been selected because they possess or are thought to possess useful properties. They are used to relieve physical or mental symptoms, produce an altered state of mind, to treat, prevent or diagnose disease, and to prevent and end pregnancy.</p>	<p><u>Lantas</u>, apa itu obat? Obat dapat didefinisikan sebagai segala unsur yang dapat mengubah struktur atau fungsi organisme hidup. Zat pencemar udara, pestisida, dan vitamin, dan juga zat kimia yang kasat mata, dapat dianggap sebagai obat dalam pengertian <i>drug</i>. Oleh karena itu, semua obat dalam pengertian <i>medicine</i> adalah obat dalam pengertian <i>drugs</i>, tetapi tidak semua obat dalam pengertian <i>drugs</i> adalah obat dalam pengertian <i>medicine</i>. Obat-obatan dalam pengertian <i>medicine</i> telah dipilih karena obat-obatan ini memiliki atau dianggap memiliki sifat-sifat yang bermanfaat. Obat-obatan ini digunakan untuk menghilangkan gejala-gejala fisik dan mental, menghasilkan perubahan keadaan pikiran, mengobati, mencegah atau mendiagnosis penyakit dan untuk mencegah dan menghentikan kehamilan.</p>

Kata *then* lebih pas diterjemahkan menjadi *lantas* daripada *kemudian*. Pemilihan kata ini berkaitan dengan *full awareness of register*. Jadi, pemilihan kata akan sangat menentukan enak atau tidaknya sebuah teks dibaca.

### ■ Task 3

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 3</b></p> <p>The term <i>drug</i> does not indicate the way that it is used, whether medically or non-medically, legally or illegally, prescribed by a doctor or not. Similarly the term <i>medicine</i> does not refer specifically to a drug in liquid form, medicines can also be given as tablets, capsules, linctuses, inhalations, injections and so on.</p>	<p>Istilah <i>drug</i> tidak mengindikasikan cara pemakaiannya, apakah secara medis atau non-medis, legal atau tidak, diresepkan oleh dokter atau tidak. Begitu pula dengan istilah <i>medicine</i> tidak mengacu secara khusus pada obat dalam bentuk cair, <i>medicine</i> juga dapat diberikan dalam bentuk tablet, kapsul, sirup, dihirup, injeksi, dan lain sebagainya.</p>

### ■ Task 4

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 4</b></p> <p>Until this century most drugs used in treatment were obtained from plants. Now only a few drugs are obtained from a natural source and most of <u>these are highly purified</u> to remove any unwanted or harmful effects.</p>	<p>Sampai abad sekarang, sebagian besar obat yang digunakan dalam pengobatan diperoleh dari tanaman. Sekarang, hanya sedikit obat-obatan diperoleh dari bahan-bahan alami dan kebanyakan dari obat-obatan ini <u>diperoleh melalui proses pemurnian yang sangat tinggi</u> untuk menghilangkan efek yang tidak diinginkan atau merusak.</p>

Perhatikan kalimat yang bergaris bawah. Dalam bahasa sasaran struktur kalimatnya diubah dengan penambahan kata *diperoleh melalui proses*, maksudnya untuk memperjelas frasa *highly purified*, dan makna kalimat.

### ■ Task 5

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 5</b></p> <p>The action of a drug is a complex physical and chemical process which may take place locally in certain cells, organs or special tissues; or more generally upon most cells in the body. Some drugs act outside the cell, some on its surface and others within the cells. In most cases <u>we still know</u> very little about how drugs actually act within the body; but we know a good deal about the effects of that action.</p>	<p>Cara kerja obat adalah sebuah proses fisik dan kimia yang kompleks yang dapat terjadi di dalam sel, organ atau jaringan-jaringan khusus tertentu saja atau lebih umumnya pada hampir seluruh sel dalam tubuh. Beberapa obat bekerja di luar sel, obat lainnya bekerja di atas permukaan dan beberapa lainnya di antara sel. Dalam banyak kasus, <u>pengetahuan kami</u> masih sedikit tentang bagaimana obat sebenarnya bekerja di dalam tubuh. Akan tetapi, kami tahu cukup banyak tentang efek dari kerja obat tersebut.</p>

Perhatikan frasa bergaris bawah. Di dalam bahasa sumber ditulis dalam kalimat berita, tetapi dalam bahasa sasaran diubah menjadi kata benda.

### ■ Task 6

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 6</b></p> <p>The effect of most drugs is to stimulate or to depress certain biochemical or physiological functions within the body. Some, such as the antibiotics, have little effect on the body tissues; they have their effect instead on infecting organisms in those tissues.</p>	<p>Efek dari kebanyakan obat adalah untuk menstimulasi atau untuk menekan fungsi biokimia atau fisiologis tertentu di dalam tubuh. Beberapa obat, seperti hal antibiotik, memiliki efek yang sedikit pada jaringan tubuh, obat-obatan ini malah memberikan efek pada organisme dalam jaringan.</p>

### ■ Task 7

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 7</b></p> <p>The effects of drugs can be used to attack disease in several different ways. The most obvious example is the cure of disease by drugs such as antibiotics, which destroy the invading organisms that were making the patient ill. Drugs whose effects are used in this way are known as anti drugs. <u>At the other end of the spectrum are</u> the drugs whose effects used to prevent disease, such as the vaccines.</p>	<p>Efek obat dapat digunakan untuk menyerang penyakit dengan cara yang berbeda-beda. Contoh yang paling jelas adalah pengobatan penyakit dengan antibiotika yang menghancurkan organisme penyerang yang menyebabkan pasien sakit. Obat yang efeknya digunakan dengan cara begini dikenal dengan <i>antidrug</i>. <u>Di sisi lain</u>, obat yang efeknya digunakan untuk mencegah penyakit, seperti vaksin.</p>

Padanan At the other end of the spectrum adalah *di sisi lain*.

### ■ Task 8

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 8</b></p> <p>There are drugs which can be used to replace elements which body cannot take in or absorb - such as vitamin B<sub>12</sub> for the patio pernicious anaemia. Finally, of course, there are drugs which are given because their effects relieve symptoms, and include everything from pain-killers and tranquillizers to antacids and decongestants.</p>	<p>Ada obat yang dapat digunakan untuk mengganti elemen yang tidak dapat diperoleh atau diserap tubuh, seperti Vitamin B<sub>12</sub> bagi anemia pernisisosa. Akhirnya, tentu saja, ada obat-obatan yang diberikan karena efeknya mengobati gejala-gejala, termasuk segala pembunuh rasa sakit dan obat penenang sampai antasida* dan dekongestan*.</p>

\**antasida* : obat untuk menetralkan asam

\**dekongestan* : obat untuk menyembuhkan sesak atau hidung tersumbat

Perhatikan dua kata yang diberi tanda bintang (\*). Apabila ada kata atau istilah yang tidak ada padanannya dalam bahasa sasaran, ada baiknya Anda memberi catatan kaki untuk memberikan penjelasan.

■ **Task 9**

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 9</b></p> <p>Any drug produces some undesired effects along with the desired. For a drug to be a useful medicine, produce more beneficial than harmful effects. If it does not make you better at least it should not make you worse. Unfortunately many people recognize adverse drug effects (sometimes called 'toxic effects') in selves. Drugs are described by their most important useful effect, and, not occur to the patient that the morphine which he is considering only as a pain reliever, an analgesic, is causing his constipation or his sleepiness or his tight chest.</p>	<p>Setiap obat menghasilkan efek yang tidak diharapkan bersamaan dengan efek yang diharapkan. Agar menjadi suatu yang bermanfaat, obat menghasilkan lebih banyak efek yang menguntungkan daripada yang merugikan. Sayangnya, banyak orang yang mengetahui efek obat yang merugikan (kadang-kadang disebut 'efek racun') dari obat tersebut. Obat digambarkan melalui efek yang paling berguna dan hal ini tidak berlaku bagi pasien, di mana morfin yang dianggap hanya sebagai obat rasa penghilang sakit, sebuah analgesik yang menyebabkan sembelit atau mengantuk atau dada sesak.</p>

■ **Task 10**

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 10</b></p> <p><b>Methods of Administration</b></p> <p>There are four routes by which a drug may reach the body. Topic administration means applying the drug to the skin (e.g.,</p>	<p><b>Metode Penggunaan</b></p> <p>Ada empat jalur bagaimana obat dapat mencapai tubuh. <i>Topic administration</i> artinya menggunakan obat pada kulit (misalnya, salep) atau</p>

ointments) or mucous membranes (e.g., vaginal tablets). Inhalation means simply that the drug is breathed into the lungs (e.g., aerosols for asthma, or general anesthetics). Enteral administration means that the drug is given either by mouth or via the rectum. Parenteral administration means that the drug is injected. An injection may be made directly into a nerve for local effect, as when the dentist deadens a painful tooth, or it may be made into the spinal cord fluid as in spinal anaesthesia. Otherwise, injections are either intravenous - made into a vein, intramuscular - made into a muscle, or subcutaneous - made under the skin.

selaput lendir (tablet untuk vagina). Penghirupan artinya adalah obat dihirup kedalam paru-paru (misalnya, alat semprot bagi penderita asma atau estetik pada umumnya). *Enteral administration* artinya bahwa obat diberikan melalui mulut atau melalui dubur). *Parenteral administration* artinya obat yang disuntikkan. Sebuah suntikan dapat dilakukan langsung pada sebuah saraf untuk memberikan efek lokal, seperti hanya ketika seorang dokter gigi menghilangkan rasa sakit pada gigi atau dapat dilakukan ke dalam selang suntikan, seperti pada suntikan yang membuat tidak sadar pada sumsum belakang. Sebaliknya, suntikan ke dalam pembuluh darah baik, dilakukan pada pembuluh darah, intramuskular, dilakukan pada otot atau subkutan, artinya dilakukan di bawah kulit.

### ■ Task 11

#### *Source Language*

##### **Paragraph 11**

Some intramuscular injections are now given in prolonged release forms. These are called 'depot' injections; the drug is slowly absorbed from the injection site over a period of hours, days or weeks - e.g., certain insulin's, steroids and tranquillizers. These 'depot' injections are not without long-term dangers and the convenience they offer to you or your doctor should not be allowed to mask these - if you

#### *Target Language*

Beberapa injeksi intramuskular sekarang ini diberikan dalam bentuk pengeluaran obat yang lama. Hal ini disebut dengan suntikan *depot* obat diserap dengan perlahan-lahan dari lokasi suntikan selama beberapa jam, hari atau minggu. Misalnya, insulin tertentu, steroid, dan obat penenang. Suntikan depot ini tidak memiliki bahaya jangka panjang dan kenyamanan yang ditawarkan pada Anda atau dokter Anda jika Anda



are receiving one of these treatments you should carry an appropriate warning card with you.

sedang dalam salah satu dari perawatan seperti ini, Anda harus selalu membawa kartu peringatan yang tepat.



**SUMMARY**

1. Sebelum mulai menerjemahkan, pastikan bahwa Anda telah memahami seluruh paragraf (analisis teksnya) dengan membacanya berulang-ulang, kemudian baru kalimat demi kalimat.
2. Hati-hati dengan istilah yang tidak ada padanannya dalam bahasa sasaran. Apabila perlu, Anda diperkenankan membuat catatan kaki.
3. Jangan pernah mencoba menerjemahkan kata per kata.
4. Jangan terpaku dengan pola bahasa sumber (*restricted by forms*). Ubahlah susunan kalimat apabila dirasa perlu dengan selalu memperhatikan ketersampaian makna secara akurat.
5. *Meaning* dialihkan secara tepat ke dalam bahasa sumber dengan memperhatikan pilihan kata (*vocabulary*), bentuk kalimat (*grammatical forms*), dan laras bahasa (*register*).



**FORMATIVE TEST 1**

*Read each of the paragraphs below along with its translation version, then identify the possible weaknesses of it by underlining them on the basis of the criteria in the band descriptors (see Appendix).*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 12</b></p> <p>Injections ensure that the drug reaches a high concentration in the blood very quickly. Intravenous injections may produce almost instantaneous effects, as mainlining drug abusers know. But no injection is without risk or difficulty. The drug has to be</p>	<p>Injeksi menjamin obat mencapai konsentrasi tinggi dalam darah secara cepat. Injeksi <i>intravenous</i> dapat menghasilkan efek pada usus, seperti obat yang disuntikkan ke dalam pembuluh darah vena utama dalam tubuh yang dikenal oleh para penyalah guna obat. Akan tetapi, tidak ada injeksi tanpa risiko atau</p>

soluble; dosage must be very exact and the injection must take place under sterile conditions. Injections are therefore usually reserved for cases where a rapid effect is essential, or the drug is poorly absorbed from the gut or the patient cannot take it by mouth.

kesulitan. Obat yang diinjeksikan harus menjadi larut; dosisnya harus sangat tepat dan injeksi harus berada pada tempat yang steril. Oleh karena itu, injeksi biasanya diperuntukkan bagi kasus, di mana diperlukan efek yang cepat atau obat sulit diserap dari usus atau pasien tidak dapat meminumnya dengan mulut.

*Source Language*

*Target Language*

**Paragraph 13**

The taking of drugs by mouth is the most convenient way. Some drugs may be absorbed from the mouth itself (e.g., glyceryl trinitrate tablets are allowed to dissolve under the tongue for the treatment of angina). Most are swallowed and absorbed - from the stomach and intestine. There are some disadvantages to taking drugs by mouth - some drugs may irritate the stomach and produce vomiting; others may be destroyed by the acid in the stomach or by digestive juices. These may need a special coating (called enteric coating) to protect them until they reach the intestine

Meminum obat oleh mulut adalah cara yang paling umum. Beberapa obat dapat diserap langsung dari mulut itu sendiri (seperti, tablet gliseril trinitrat diperbolehkan dilarutkan di bawah lidah untuk pengobatan kejang jantung). Kebanyakan obat ditelan dan diserap dari perut dan usus. Ada beberapa kerugian meminum obat dengan mulut beberapa obat dapat menyebabkan iritasi pada perut dan menyebabkan muntah, obat-obatan lain dapat dihancurkan oleh asam dalam perut atau oleh getah pencernaan. Obat-obatan seperti ini, membutuhkan lapisan khusus (disebut *enteric coating*) untuk melindungi obat-obatan ini sampai dapat mencapai usus.

## LEARNING ACTIVITY 2

## English-Bahasa Indonesia Translation

*Read the following text very carefully to get a general impression of it, analyze it and then do the exercises that follow.*

**MEDICINE 2:  
VIRUSES**

Viruses are known to most people as germs that cause disease in human beings and in animals. Almost everyone has heard of polio myelitis (polio), influenza (flu), and rabies. These are three of the many diseases caused by viruses.

But there are other viruses besides the ones that make people and animal sick. Certain viruses cause diseases in plants, and other viruses attack bacteria.

Viruses that attack man and animals are called animal viruses. Viruses that attack plants are called plant viruses. And viruses that attack bacteria are called bacterial viruses or bacteriophages (*bacteriophages* means *eaters of bacteria*).

Scientists study all three kinds of viruses, since understanding one kind helps in understanding the others.

**WHAT ARE VIRUSES?**

Viruses are very small organisms, or living things. But they do not always seem like living things. Viruses grow and multiply only when they are inside living cells. Outside living cells, viruses do not change in any way. They seem completely lifeless. Viruses do not have the machinery needed to reproduce themselves. They cannot grow unless they are inside the cells of animals, plants, or bacteria. Viruses make use of the machinery of these bacteria.

### **Size and shapes of viruses**

Viruses are measured in units called millimicrons. One millimicron is about 1/25.000.000 inch. Most viruses range in size from 25 to 250 millimicrons, or from about 1/1.000.000 inch to 1/100.000 inch.

Because they are so small, most viruses cannot be seen with an optical microscope. Viruses can be seen in beautiful detail, however, with an electron microscope.

The electron microscope shows that viruses have several different shapes. Some plant viruses are shaped like long, thin rods. Many bacterial viruses look like tadpoles.

Most animal viruses look spherical, or rounded. Some of the viruses that look round, however, actually have many-sided geometrical shapes. For example, the polio virus and tipula, a virus that attacks insects, are made up of 20 triangular-shaped surfaces fitted together.

### **THE DISCOVER OF VIRUSES**

Because of their small size, viruses remained invisible until modern instruments were developed. But even before viruses were seen, some scientists suspected that they existed. One of these scientists was Louis Pasteur.

In the second half of 1800's Pasteur was working with bacteria (singular: bacterium). He suspected and helped to prove that these one-celled forms of life could cause disease. He further suspected that there might be still other disease-causing organisms that no one had seen. These, he thought, must be much smaller – so much smaller that they did not show up under a microscope. Scientists now know that viruses are such organisms. But with the instruments of his time Pasteur was never able to prove his theory. (Even without proving it, however, he developed a vaccine against rabies, later found to be a virus disease).

The next steps towards finding viruses were taken in the 1890's. At that time two botanists, working independently, discovered something important about a plant disease called tobacco mosaic.

In 1892 Dmitry Iwanowski (1864-1920), a Russian, caused tobacco mosaic disease in healthy plants, he did this by pressing juice from the leaves of tobacco plants that had the disease and passing the juice through a fine filter to purify it. Then he put some of the filtered juice on healthy plants. The plants developed tobacco mosaic disease. Iwanowski thought the disease was caused by a bacterium that got through the filter or by a toxin (poison).

### **Stanley's work**

In 1935 Wendell M. Stanley (1904- ), an American biochemist, made an important breakthrough. He succeeded in separating the viruses of tobacco mosaic from the plant cells in which they were growing.

Stanley's work was a turning point in the study of viruses. He had shown that in living cells this protein – or chemical substance – could reproduce itself like a living thing.

## **CHEMICAL MAKEUP OF VIRUSES**

Soon after Stanley did his work on tobacco mosaic viruses, other scientists found that this virus was not entirely protein. Tobacco mosaic virus contains a small amount of another combination of chemicals, known as nucleic acid.

All viruses contain two basic substances: protein and nucleic acid. The nucleic acid is at the center of the virus, and the protein generally forms a coat. The protein coat is the part of the virus that attaches to a host cell – the cell in which the virus will live.

The nucleic acid is active in the making of new viruses. It carries the chemical instructions that allow a virus to make new virus particles exactly like the original particle.

Every living cell has within it nucleic acid. In all organisms the nucleic acid carries genetic information – instruction for the making of new organisms. Organisms larger than viruses have two kind of nucleic acid. One kind is called DNA (deoxyribonucleic acid), and the other is called RNA (ribonucleic acid). Viruses, however, have either DNA or RNA. They never have both.

A virus particle seems to have only one molecule of nucleic acid. The molecule may vary greatly in size from one virus to another. The nucleic acid is like a long coded message. If the nucleic acid molecule is large, the message is long. A long message can transmit more chemical instructions than a short message. Thus, the more nucleic acid a virus has, the greater the variety of new chemical substances it can make.

## **THE BACTERIAL VIRUSES**

By working with bacteriophages, or bacterial viruses, virologists have learned a great deal about the way viruses multiply. The bacterial viruses are easy to grow because it is simple to provide living hosts for them. Millions of bacteria – the hosts – will grow in a nourishing liquid in a test tube.

Then, too, bacterial viruses grow quickly in their hosts. Within minutes, a bacteriophage can form hundreds of new viruses inside a cell. When these are completely formed, the cell bursts open, releasing them. The quick growth of bacteriophages means that many generations of viruses can be studied in a short time.

Most bacterial viruses are tadpole-shaped. The one most commonly studied attaches to the surface of its host by its “tail.” The virus injects its nucleic acid into the host, while the protein coat of the virus remains on the outside of the bacterium.

The nucleic acid of the bacteriophage takes over the cell machinery of the host. The nucleic acid begins to make chemicals that the virus needs to reproduce itself. Among the chemicals the virus needs are enzymes, a kind of protein. These are used to make more virus nucleic acid.

## **PLANT VIRUSES**

Viruses are usually introduced into plants by insects. Within a plant, viruses are carried by the plant’s fluids, or juices.

Scientists have learned a great deal about the chemical structure of viruses by working with plant viruses. These viruses grow in large amounts in their

hosts. And the viruses can be separated easily from the cells in which they are growing.

The plant fluids are pressed from diseased plants, then spun in plastic tubes at very high speeds. The machine that spins the test tubes is called ultracentrifuge. The viruses and all particles larger than the viruses are thrown down by the strong gravitational force into solid pellets in the bottom of the test tubes. Particles smaller than viruses remain floating in fluid at the top. The fluid is thrown away, and the solid substance is put in water and then spun more slowly.

This time the larger particles sink to the bottom and the viruses remain in the water. The larger particles are thrown away. Then the solution of viruses and water is re-spun in the ultracentrifuge until the viruses are at the bottom of the test tubes.

## **ANIMAL VIRUSES**

The viruses that infect man and animals may be breathed in or swallowed. Or they may enter the body through an opening in the skin, such as, a cut, sore, sting, or bite. Inside the body, viruses travel in a body fluid, such as blood.

There are many kinds of animal viruses. One way of grouping them is by physical characteristics, such as size and chemical composition. Animal viruses may be relatively small or relatively large, and they can have either RNS or DNA as their nucleic acid.

Animal viruses can also be grouped according to the part of the cell they grow in and their effect on the cell. Like some bacterial viruses, some animal viruses can destroy cell simply by growing on them. Viruses that destroy cells are called cytotoxic, or cell-killing.

### **The growth of a tumor virus**

The most deadly of the tumor viruses is the Rous sarcoma virus, one that infects chickens. This virus is much larger than the polio virus, but as not large as the virus that causes smallpox. It is deadly because it causes cells to become malignant.

Normally, cells grow in orderly arrangements. These orderly arrangements form the tissues of the body. When the arrangements are complete, cell growth slows down; the growth rate of the cells equals the death rate. (Some cells, such as the nerve cell, neither grow nor die. The number remains essentially constant throughout life).

In Rous sarcoma virus the cells keep growing after they should have stopped. Instead of forming orderly arrangements, the cells move in every direction, invading other tissues. When vital body organs are invaded, the animal dies.

Like the polio virus, the Rous sarcoma virus enters a cell, shedding its protein coat. Inside the cell its nucleic acid is reproduced. But the Rous sarcoma virus does not carry the chemical instructions for making its own protein coat. Therefore no new particles appear.

Taken from: *The New Book of Knowledge*. (1977). Canada: Grolier Inc.

### ■ Task 1

Now, learn the model answer below together with a short explanation about it.

### MODEL

Source Language	Target Language
<p><b>Paragraph 1</b></p> <p><i>Viruses</i></p> <p><u>Viruses</u> are known to most people as germs that cause disease in <u>human beings</u> and in <u>animals</u>. Almost everyone has heard of polio myelitis (polio), influenza (flu), and rabies. These are three of the many diseases <u>caused</u> by viruses.</p>	<p><i>Virus</i></p> <p>Bagi kebanyakan orang, <u>virus</u> dikenal sebagai kuman yang menimbulkan penyakit pada <u>manusia</u> dan <u>hewan</u>. Hampir semua orang pernah mendengar polio myelitis (polio), influenza (flu), dan rabies. Ketiga penyakit ini adalah contoh dari banyak penyakit <u>yang</u> disebabkan oleh virus.</p>

### Penjelasan:

Ada beberapa hal yang perlu dikomentari dari Model Answer di atas. *Pertama*, perhatikan penyebutan bentuk jamak kata benda dalam bahasa



sumber, seperti *viruses*, *human beings*, dan *animals*. Dalam bahasa sasaran ketiga kata jamak tersebut berubah menjadi bentuk tunggal, yaitu *virus*, *manusia*, dan hewan. Pergeseran bentuk ini disebut dengan pergeseran transposisi dan tidak merubah makna. *Kedua*, perhatikan kata *caused*. Dalam bahasa sasaran, klausa ini disebutkan secara penuh menjadi *yang disebabkan* karena klausa ini sebenarnya berbentuk "... *many diseases that are caused by virus*" dan disebut dengan bentuk partisiium (bergaris bawah) (Machali, 2000).



**EXERCISE 2** \_\_\_\_\_

■ **Task 2**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 2</b></p> <p>But there are other viruses besides the ones that make people and animal sick. Certain viruses cause diseases in plants, and other viruses attack bacteria.</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

■ **Task 3**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 3</b></p> <p>Viruses that attack man and animals are called animal viruses. Viruses that attack plants are called plant viruses. And viruses that attack bacteria are called bacterial viruses or bacteriophages (<i>bacteriophage</i> means <i>eaters of bacteria</i>).</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

■ **Task 4**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 4</b></p> <p>Scientists study all three kinds of viruses, since understanding one kind helps in understanding the others.</p>	<p>.....</p> <p>.....</p> <p>.....</p>

■ **Task 5**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 5</b></p> <p><i>What are viruses?</i></p> <p>Viruses are very small organisms, or living things. But they do not always seem like living things. Viruses grow and multiply only when they are inside living cells. Outside living cells, viruses do not change in any way. They seem completely lifeless. Viruses do not have the machinery needed to reproduce themselves. They cannot grow unless they are inside the cells of animals, plants, or bacteria. Viruses make use of the machinery of these bacteria.</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

■ **Task 6**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 6</b></p> <p><i>Size and shapes of viruses</i></p> <p>Viruses are measured in units called millimicrons. One millimicron is about 1/25.000.000 inch. Most viruses range in</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>





■ **Task 12**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 12</b></p> <p>The next steps towards finding viruses were taken in the 1890's. At that time two botanists, working independently, discovered something important about a plant disease called tobacco mosaic.</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

■ **Task 13**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 13</b></p> <p>In 1892 Dmitry Iwanowski (1864-1920), a Russian, caused tobacco mosaic disease in healthy plants, he did this by pressing juice from the leaves of tobacco plants that had the disease and passing the juice through a fine filter to purify it. Then he put some of the filtered juice on healthy plants. The plants developed tobacco mosaic disease. Iwanowski thought the disease was caused by a bacterium that got through the filter or by a toxin (poison).</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

■ **Task 14**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 14</b></p> <p><i>Stanley's work</i></p> <p>In 1935 Wendell M. Stanley (1904-...), an American biochemist, made an</p>	<p>.....</p> <p>.....</p> <p>.....</p>

important breakthrough. He succeeded in separating the viruses of tobacco mosaic from the plant cells in which they were growing.

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■ **Task 15**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 15</b>                      Stanley’s work was a turning point in the study of viruses. He had shown that in living cells this protein – or chemical substance – could reproduce itself like a living thing.</p>	<p>.....                      .....                      .....                      .....                      .....</p>

■ **Task 16**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 16</b>  <i>Chemical makeup of viruses</i>                      Soon after Stanley did his work on tobacco mosaic viruses, other scientists found that this virus was not entirely protein. Tobacco mosaic virus contains a small amount of another combination of chemicals, known as nucleic acid.</p>	<p>.....                      .....                      .....                      .....                      .....                      .....</p>

■ **Task 17**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 17</b>                      All viruses contain two basic substances: protein and nucleic acid.</p>	<p>.....                      .....                      .....</p>

The nucleic acid is at the center of the virus, and the protein generally forms a coat. The protein coat is the part of the virus that attaches to a host cell – the cell in which the virus will live.

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■ **Task 18**

*Translate the following extract into Bahasa Indonesia.*

*Source Language*

*Target Language*

**Paragraph 18**

The nucleic acid is active in the making of new viruses. It carries the chemical instructions that allow a virus to make new virus particles exactly like the original particle.

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■ **Task 19**

*Translate the following extract into Bahasa Indonesia.*

*Source Language*

*Target Language*

**Paragraph 19**

Every living cell has within it nucleic acid. In all organisms the nucleic acid carries genetic information – instruction for the making of new organisms. Organisms larger than viruses have two kind of nucleic acid. One kind is called DNA (deoxyribonucleic acid), and the other is called RNA (ribonucleic acid). Viruses, however, have either DNA or RNA. They never have both.

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■ **Task 22**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 22</b></p> <p>Then, too, bacterial viruses grow quickly in their hosts. Within minutes, a bacteriophage can form hundreds of new viruses inside a cell. When these are completely formed, the cell bursts open, releasing them. The quick growth of bacteriophages means that many generations of viruses can be studied in a short time.</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

■ **Task 23**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 23</b></p> <p>Most bacterial viruses are tadpole-shaped. The one most commonly studied attaches to the surface of its host by its “tail.” The virus injects its nucleic acid into the host, while the protein coat of the virus remains on the outside of the bacterium.</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

■ **Task 24**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 24</b></p> <p>The nucleic acid of the bacteriophage takes over the cell machinery of the host. The nucleic acid begins to make chemicals that</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

the virus needs to reproduce itself. Among the chemicals the virus needs are enzymes, a kind of protein. These are used to make more virus nucleic acid.	..... ..... ..... ..... .....
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■ **Task 25**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<b>Paragraph 25</b> <i>Plant viruses</i> Viruses are usually introduced into plants by insects. Within a plant, viruses are carried by the plant’s fluids, or juices.	..... ..... ..... .....

■ **Task 26**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<b>Paragraph 26</b> Scientists have learned a great deal about the chemical structure of viruses by working with plant viruses. These viruses grow in large amounts in their hosts. And the viruses can be separated easily from the cells in which they are growing.	..... ..... ..... ..... .....


■ **Task 27**

*Translate the following extract into Bahasa Indonesia.*

<i>Source Language</i>	<i>Target Language</i>
<b>Paragraph 27</b> The plant fluids are pressed from diseased plants, then spun in plastic tubes at very high speeds. The	..... ..... .....





	<b>KEY TO EXERCISE 2</b>
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■ Task 2

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 2</b></p> <p>But there are other viruses besides the ones that make people and animal sick. Certain viruses cause diseases in plants, and other viruses attack bacteria.</p>	<p>Akan tetapi, ada juga virus-virus lain selain yang disebutkan di atas yang membuat manusia dan hewan sakit. Beberapa virus tertentu menyebabkan penyakit pada tanaman, dan virus lainnya menyerang bakteri.</p>

■ Task 3

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 3</b></p> <p>Viruses that attack man and animals are called animal viruses. Viruses that attack plants are called plant viruses. And viruses that attack bacteria are called bacterial viruses or bacteriophages (<i>bacteriophages</i> means <i>eaters of bacteria</i>).</p>	<p>Virus yang menyerang manusia dan hewan disebut virus hewan. Virus yang menyerang tanaman disebut virus tanaman. Dan virus yang menyerang bakteri disebut dengan virus bakteri atau bacteriophages (<i>bacteriophages</i> artinya adalah <i>pemakan bakteri</i>).</p>

■ Task 4

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 4</b></p> <p>Scientists study all three kinds of viruses, <u>since</u> understanding one kind helps in understanding the others.</p>	<p>Para ilmuwan mengkaji ketiga jenis virus ini, <u>karena</u> memahami satu jenis <u>virus</u> membantu memahami yang lainnya.</p>

Perhatikan kata *since* yang diterjemahkan menjadi *karena*. Kemudian, perhatikan kata *virus* dalam bahasa sasaran. Kata ini tidak terdapat dalam bahasa sumber, namun untuk memperjelas makna kalimat, kata ini dimunculkan.

### ■ Task 5

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 5</b>  <i>What are viruses?</i>            Viruses are very small organisms, or living things. But <u>they</u> do not always seem like living things. Viruses grow and multiply only when they are inside living cells. Outside living cells, viruses do not change in any way. They seem completely lifeless. Viruses do not have the machinery needed to reproduce themselves. They cannot grow unless they are inside the cells of animals, plants, or bacteria. Viruses make use of the machinery of these bacteria.</p>	<p><i>Apakah virus itu?</i>            Virus adalah makhluk hidup kecil atau benda hidup. Akan tetapi, virus ini tidak selalu mirip dengan benda-benda yang hidup. Virus tumbuh dan berkembang biak ketika mereka berada dalam sel-sel yang hidup. Di luar sel yang hidup, virus tidak dapat berubah sama sekali. Virus ini tampak, seperti tak bernyawa. Virus tidak memiliki perangkat yang dibutuhkan untuk mereproduksi diri sendiri. Virus tidak dapat tumbuh, kecuali berada di dalam sel-sel binatang, tanaman atau bakteri. Virus menggunakan perangkat sel bakteri-bakteri ini.</p>

Perhatikan penggunaan kata *they* sebagai kata ganti *viruses*. Dalam bahasa sasaran, kata *they* diterjemahkan menjadi *virus* atau *virus-virus* tidak diterjemahkan menjadi *mereka* karena kata *mereka* atau *ia* tidak lazim digunakan sebagai kata ganti benda.

■ **Task 6**

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 6</b>  <i>Size and shapes of viruses</i>                      Viruses are measured in units called millimicrons. One millimicron is about 1/25.000.000 inch. Most viruses range in size from 25 to 250 millimicrons, or from about 1/1.000.000 inch to 1/100.000 inch.</p>	<p><i>Bentuk dan ukuran virus</i>                      Virus diukur dengan satuan yang disebut milimikron. Satu milimikron adalah sekitar 1/25.000.000 inci. Sebagian besar virus berukuran antara 25 hingga 250 milimikron, atau sekitar 1/1.000.000 inci sampai 1/100.000 inci.</p>

■ **Task 7**

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 7</b>                      Because they are so small, most viruses cannot be seen with an optical microscope. Viruses can be seen in beautiful detail, however, with an electron microscope.</p>	<p>Karena sangat kecil, sebagian besar virus tidak dapat dilihat dengan mikroskop optik. Akan tetapi, virus dapat dilihat dalam secara detail dengan mikroskop elektron.</p>

■ **Task 8**

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 8</b>                      The electron microscope shows that viruses have several different shapes. Some plant viruses are shaped like long, thin rods. Many bacterial viruses look like tadpoles.</p>	<p>Mikroskop elektron menunjukkan bahwa virus memiliki beberapa bentuk yang berbeda. Beberapa virus tanaman berbentuk, seperti batang-batang panjang pipih. Banyak virus bakteri tampak, seperti berudu.</p>

### ■ Task 9

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 9</b></p> <p>Most animal viruses look spherical, or rounded. Some of the viruses that look round, <u>however</u>, actually have many-sided geometrical shapes. For example, the polio virus and tipula, a virus that attacks insects, are made up of 20 triangular-shaped surfaces fitted together.</p>	<p>Sebagian besar virus hewan tampak, seperti bola atau bulat. <u>Akan tetapi</u>, beberapa virus yang berbentuk bulat memiliki bentuk dengan sis-sisi yang geometris. Sebagai contoh, virus polio dan <i>tipula</i>, yaitu virus yang menyerang serangga, bentuknya permukaannya terdiri dari 20 segitiga yang saling menyusun satu dan lainnya.</p>

Kata *however*, dalam teks bahasa Inggris lazim ditempatkan di tengah kalimat. Akan tetapi, dalam bahasa Indonesia, kata *akan tetapi*, kurang lazim ditempatkan di tengah kalimat, tetapi ditempatkan di awal kalimat.

### ■ Task 10

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 10</b></p> <p><i>The discover of viruses</i></p> <p>Because of their small size, viruses remained invisible until modern instruments were developed. But even before viruses were seen, some scientists suspected that they existed. One of these scientists was Louis Pasteur.</p>	<p><i>Penemuan virus</i></p> <p>Karena bentuknya kecil, virus tetap tidak terlihat sampai dikembangkannya alat-alat modern. Tetapi, bahkan sebelum virus itu terlihat, para ilmuwan sudah mencurigai bahwa virus itu memang ada. Salah satu ilmuwan tersebut adalah Louis Pasteur.</p>



### ■ Task 11

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 11</b></p> <p>In the second half of 1800's Pasteur was working with bacteria (singular: bacterium). He suspected and helped to prove that these one-celled forms of life could cause disease. He further suspected that there might be still other disease-causing organisms that no one had seen. These, he thought, must be much smaller – so much smaller that they did not show up under a microscope. Scientists now know that viruses are such organisms. But with the instruments of his time Pasteur was never able to prove his theory. (Even without proving it, however, he developed a vaccine against rabies, later found to be a virus disease).</p>	<p>Pada paruh kedua tahun 1800-an, Pasteur berurusan dengan bakteri (bentuk tunggalnya (dalam bahasa Latin) adalah bacterium). Ia mencurigai dan membantu membuktikan bahwa makhluk hidup bersel tunggal ini dapat menyebabkan penyakit. Lebih jauh ia mencurigai bahwa mungkin masih ada makhluk hidup lainnya yang menjadi penyebab penyakit yang tidak pernah terlihat oleh seorang pun. Ia pikir bahwa makhluk hidup ini jauh lebih kecil dan tidak tampak di bawah mikroskop. Para ilmuwan sekarang mengetahui bahwa virus adalah makhluk hidup. Akan tetapi, dengan peralatan pada waktu itu, Pasteur tidak pernah dapat membuktikan teorinya. (Namun demikian, tanpa membuktikannya, ia telah mengembangkan sebuah vaksin anti rabies, kemudian diketahui sebagai virus yang menyebabkan penyakit).</p>

### ■ Task 12

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 12</b></p> <p>The next steps towards finding viruses were taken in the 1890's. At that time two botanists, working independently, discovered something important about a plant disease called tobacco mosaic.</p>	<p>Langkah berikut bagi penemuan virus terjadi pada tahun 1890-an. Pada saat itu dua orang ahli tanaman, yang bekerja secara mandiri, menemukan suatu hal yang penting mengenai penyakit tanaman yang disebut mosaik tembakau.</p>

### ■ Task 13

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 13</b></p> <p>In 1892 Dmitry Iwanowski (1864-1920), a Russian, caused tobacco mosaic disease in healthy plants, he did this by pressing juice from the leaves of tobacco plants that had the disease and passing the juice through a fine filter to purify it. Then he put some of the <u>filtered juice</u> on healthy plants. The plants developed tobacco mosaic disease. Iwanowski thought the disease was caused by a bacterium that got through the filter or by a toxin (poison).</p>	<p>Pada tahun 1892, Dimitri Iwanowski (1864-1920), seorang berkebangsaan Rusia, memasukkan mosaik tembakau pada tanaman yang sehat. Ia melakukan ini dengan cara menekan jus dari daun tembakau yang menderita penyakit dan mengalirkan jus tembakau tersebut melalui saringan yang halus untuk memurni-kannya. Kemudian, ia membubuhkan sebagian <u>jus yang sudah disaring</u> itu pada tanaman yang sehat. Tanaman ini terkena penyakit mosaik tembakau. Iwanowski mengira bahwa penyakit ini disebabkan oleh bakteri yang diperoleh melalui saringan atau disebabkan oleh toksin (racun).</p>

Perhatikan frase *filtered juice* dengan saksama. Kata *filtered* adalah kata sifat yang menerangkan kata *juice* dan ini adalah bentuk pasif sehingga maknanya menjadi *yang disaring*.

### ■ Task 14

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 14</b></p> <p><i>Stanley's work</i></p> <p>In 1935 Wendell M. Stanley (1904- ), an American biochemist, made an important breakthrough. He succeeded in separating the viruses of tobacco mosaic from the plant cells in which they were growing.</p>	<p><i>Karya Stanley</i></p> <p>Pada tahun 1935 Wendel M. Stanley (1904- ...) seorang biokimiawan Amerika, membuat sebuah terobosan penting. Ia berhasil memisahkan virus mosaik tembakau dari sel tanaman tempat virus ini berkembang.</p>

■ **Task 15**

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 15</b></p> <p>Stanley’s work was a turning point in the study of viruses. He had shown that in living cells this protein – or chemical substance – could reproduce itself like a living thing.</p>	<p>Karya Stanley merupakan titik balik dalam kajian virus. Ia telah menunjukkan bahwa sebuah virus adalah protein. Ia juga menunjukkan bahwa dalam sel hidup, protein ini atau zat kimia dapat mereproduksi diri sendiri, seperti benda hidup.</p>

■ **Task 16**

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 16</b></p> <p><i>Chemical makeup of viruses</i></p> <p>Soon after Stanley did his work on tobacco mosaic viruses, other scientists found that this virus was not entirely protein. Tobacco mosaic virus contains a small amount of another combination of chemicals, known as nucleic acid.</p>	<p><i>Susunan kimia virus</i></p> <p>Tak lama setelah Stanley menyelesaikan karyanya pada mosaik virus tembakau, para ilmuwan lain menemukan bahwa virus ini tidak sepenuhnya protein. Virus mosaik tembakau mengandung sejumlah kecil kombinasi kimia, yang dikenal dengan asam nukleat.</p>

■ **Task 17**

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 17</b></p> <p>All viruses contain two basic substances: protein and nucleic acid. The nucleic acid is at the center of the virus, and the protein generally forms a coat. The protein coat is the part of the virus that attaches to a</p>	<p>Semua virus mengandung dua zat dasar, yaitu protein dan asam nukleat. Asam nukleat adalah pusatnya virus, dan protein pada umumnya membentuk lapisan. Lapisan protein adalah bagian dari virus yang</p>

<u>host cell</u> – the cell in which the virus will live.	menempel pada <u>sel inang</u> - sel tempat virus hidup.
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Perhatikan frase *host cell* yang diterjemahkan dengan mencari padanannya dalam bahasa Indonesia, yaitu *inang*.

### ■ Task 18

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 18</b></p> <p>The nucleic acid is active in the making of new viruses. It carries the chemical instructions that allow a virus to make new virus particles exactly like the original particle.</p>	<p>Asam nukleat aktif membuat virus-virus baru. Asam nukleat membawa petunjuk kimia yang memungkinkan sebuah virus membuat partikel virus baru yang mirip sekali dengan partikel aslinya.</p>

### ■ Task 19

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 19</b></p> <p>Every living cell has within it nucleic acid. In all organisms the nucleic acid carries genetic information – instruction for the making of new organisms. Organisms larger than viruses have two kind of nucleic acid. One kind is called DNA (deoxyribonucleic acid), and the other is called RNA (ribonucleic acid). Viruses, however, have either DNA or RNA. They never have both.</p>	<p>Setiap sel hidup memiliki asam nukleat di dalamnya. Pada semua makhluk hidup asam nukleat membawa informasi genetik- petunjuk dalam penciptaan makhluk hidup baru. Makhluk hidup yang lebih besar dari virus memiliki dua jenis asam nukleat. Yang pertama disebut DNA (deoxyribonucleic acid) dan yang kedua disebut RNA (ribonucleic acid). Akan tetapi, virus memiliki salah satu di antaranya, DNA atau RNA. Virus tidak pernah memiliki keduanya.</p>

■ Task 20

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 20</b></p> <p>A virus particle seems to have only one molecule of nucleic acid. The molecule may vary greatly in size from one virus to another. The nucleic acid is like a long coded message. If the nucleic acid molecule is large, the message is long. A long message can transmit more chemical instructions than a short message. Thus, the more nucleic acid a virus has, the greater the variety of new chemical substances it can make.</p>	<p>Partikel virus sepertinya hanya memiliki satu molekul asam nukleat. Ukuran molekul ini dapat beraneka ragam antara satu virus dengan virus lainnya. Asam nukleat ini mirip sebuah kode pesan panjang. Jika molekul asam nukleat luas, maka pesannya panjang. Sebuah pesan panjang dapat menyampaikan lebih banyak petunjuk kimia dari pada pesan pendek. Maka, semakin banyak asam nukleat yang dimiliki virus, semakin besar variasi zat kimia baru yang dapat dibuat.</p>

■ Task 21

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 21</b></p> <p><i>The bacterial viruses</i></p> <p>By <u>working with</u> bacteriophages, or bacterial viruses, virologists have learned a great deal about the way viruses multiply. The bacterial viruses are easy to grow because it is simple to provide living hosts from them. Millions of bacteria – the hosts – will grow in a nourishing liquid in a test tube.</p>	<p><i>Bakteri virus</i></p> <p>Dengan <u>menggeluti</u> <i>bacteriophages</i> atau bakteri virus, para ahli virus menemukan banyak hal tentang cara virus mengembangbiakkan diri. Bakteri virus mudah tumbuh karena bagi mereka mudah mendapatkan makhluk hidup tempat hidupnya. Jutaan bakteri – inangnya – akan tumbuh dalam cairan yang mengandung zat makanan dalam sebuah tabung percobaan.</p>

Ada beberapa hal yang menarik dari terjemahan di atas adalah kata *menggeluti* sebagai terjemahan *working with*. Terjemahan ini terasa sangat

pas dibandingkan apabila diterjemahkan menjadi *dengan bekerja dengan*. Ini disebut dengan *full awareness of registers*. Penerjemah sangat teliti dalam memilih kata sehingga enak dibaca.

### ■ Task 22

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 22</b></p> <p>Then, too, bacterial viruses grow quickly in their hosts. Within minutes, a bacteriophage can form hundreds of new viruses inside a cell. When these are completely formed, the cell bursts open, releasing them. The quick growth of bacteriophages means that many generations of viruses can be studied in a short time.</p>	<p>Kemudian, bakteri virus juga tumbuh dengan cepat di inangnya. Dalam hitungan menit, sebuah <i>bacteriophage</i> dapat membentuk ratusan virus baru di dalam sebuah sel. Ketika telah lengkap terbentuk, sel pecah, melepaskan virus-virus tersebut. Pertumbuhan <i>bacteriophage</i> yang cepat ini berarti bahwa banyak generasi virus dapat dipelajari dalam waktu yang singkat.</p>

### ■ Task 23

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 23</b></p> <p>Most bacterial viruses are tadpole-shaped. The one most commonly studied attaches to the surface of its host by its “tail.” The virus injects its nucleic acid into the host, while the protein coat of the virus remains on the outside of the bacterium.</p>	<p>Sebagian besar virus bakteri berbentuk, seperti berudu. Hal yang paling banyak dipelajari adalah virus yang menempel pada permukaan inangnya dengan <i>ekornya</i>. Virus ini menyuntikkan asam nukleatnya pada inangnya, sementara lapisan protein tetap pada permukaan luar bakteri.</p>

■ **Task 24**

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 24</b></p> <p>The nucleic acid of the bacteriophage takes over the cell machinery of the host. The nucleic acid begins to make chemicals that the virus needs to reproduce itself. Among the chemicals the virus needs are enzymes, a kind of protein. These are used to make more virus nucleic acid.</p>	<p>Asam nukleat <i>bacteriophage</i> mengambil alih perangkat sel inangnya. Asam nukleat mulai membuat zat kimia yang dibutuhkan oleh virus untuk mereproduksi diri. Di antara zat kimia yang diperlukan adalah enzyme, sejenis protein. Enzim-enzim ini digunakan untuk membuat lebih banyak asam nukleat virus.</p>

■ **Task 25**

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 25</b></p> <p><i>Plant viruses</i></p> <p>Viruses are usually introduced into plants by insects. Within a plant, viruses are carried by the plant's fluids, or juices.</p>	<p><i>Virus tanaman</i></p> <p>Umumnya, virus dimasukkan ke dalam tanaman oleh serangga. Di dalam tanaman, virus dibawa oleh cairan tanaman atau getah.</p>

■ **Task 26**

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 26</b></p> <p>Scientists have learned a great deal about the chemical structure of viruses by working with plant viruses. These viruses grow in large amounts in their hosts. And the viruses can be separated easily from the cells in which they are growing.</p>	<p>Para ilmuwan telah mengetahui struktur kimia virus dengan menggeluti virus tanaman. Virus ini tumbuh dalam jumlah yang banyak pada inang mereka. Dan virus ini dapat dipisahkan dengan mudah dari sel tempat mereka tumbuh.</p>

### ■ Task 27

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 27</b></p> <p>The plant fluids are pressed from diseased plants, then spun in plastic tubes at very high speeds. The machine that spins the test tubes is called ultracentrifuge. The viruses and all particles larger than the viruses are thrown down by the strong gravitational force into solid pellets in the bottom of the test tubes. Particles smaller than viruses remain floating in fluid at the top. The fluid is thrown away, and the solid substance is put in water and then spun more slowly.</p>	<p>Cairan tanaman di peroleh dari tanaman yang sakit dengan cara diperas, kemudian diputar dalam tabung plastik pada kecepatan yang sangat tinggi. Mesin yang memutar tabung percobaan ini disebut <i>ultracentrifuge</i> (mesin pengayak dengan kekuatan yang sangat tinggi). Virus dan semua partikel yang lebih besar daripada virus dijatuhkan ke bawah oleh kekuatan gravitasi yang sangat kuat menjadi butiran-butiran padat di bagian dasar tabung percobaan. Partikel-partikel yang lebih kecil daripada virus tetap mengambang dalam cairan pada bagian atas. Cairan ini dibuang dan zat yang padat diletakkan di air, kemudian diputar dengan kecepatan lebih rendah.</p>

### ■ Task 28

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 28</b></p> <p>This time the larger particles sink to the bottom and the viruses remain in the water. The larger particles are thrown away. Then the solution of viruses and water is re-spun in the ultracentrifuge until the viruses are at the bottom of the test tubes.</p>	<p>Kali ini partikel yang lebih besar tenggelam ke bagian bawah dan virus tetap berada di air. Partikel-partikel yang lebih besar dibuang. Kemudian, larutan virus dan air di putar ulang di <i>ultracentrifuge</i> sehingga virus berada pada bagian bawah tabung percobaan.</p>



■ Task 29

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 29</b>  <i>Animal viruses</i></p> <p>The viruses that infect man and animals may be breathed in or swallowed. Or they may enter the body through an opening in the skin, such as, a cut, sore, sting, or bite. Inside the body, viruses travel in a body fluid, such as blood.</p>	<p><i>Virus hewan</i></p> <p>Virus yang menginfeksi manusia dan hewan dapat terhisap atau tertelan. Atau virus ini masuk ke dalam tubuh melalui luka terbuka di kulit, seperti luka terpotong, luka baret, tersengat atau digigit. Di dalam tubuh, virus menjangar dalam cairan tubuh, seperti darah.</p>

■ Task 30

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 30</b></p> <p>There are many kinds of animal viruses. One way of grouping them is by physical characteristics, such as size and chemical composition. Animal viruses may be relatively small or relatively large, and they can have either RNS or DNA as their nucleic acid.</p>	<p>Ada banyak jenis virus hewan. Salah satu cara pengelompokannya adalah melalui ciri fisik, seperti ukuran dan komposisi kimia. Virus hewan relatif lebih kecil atau relatif lebih besar dan virus ini dapat memiliki salah satu dari DNA atau RNA sebagai asam nukleatnya.</p>



**SUMMARY**

1. Hati-hati dengan laras bahasa (*full awareness of registers*) Anda harus teliti memilih kata yang tepat sesuai dengan konteks kalimat.
2. Bentuk kalimat pasif (*passive voice*) dalam bahasa sumber dapat diubah menjadi kalimat aktif dalam bahasa sasaran atau sebaliknya. Akan tetapi, apabila hal ini tidak mengubah makna.
3. Perhatikan penggunaan *phrasal verbs* dan *idiomatic expressions*.

4. Pastikan pesan dalam bahasa sumber dialihkan dengan benar ke dalam bahasa sasaran.
5. Apabila ada kata asing yang sudah diserap ke dalam bahasa Indonesia dan tetap mempertahankan bentuknya, buatlah dengan cetak miring



## FORMATIVE TEST 2

Read paragraphs below and its translation version, then identify the possible weaknesses of it by underlining them and put the kinds of mistakes based on the criteria in the band descriptors.

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 31</b></p> <p>Animal viruses can also be grouped according to the part of the cell they grow in and their effect on the cell. Like some bacterial viruses, some animal viruses can destroy cell simply by growing on them. Viruses that destroy cells are called cytocidal or cell-killing.</p> <p>The most deadly of the tumor viruses is the Rous sarcoma virus, one that infects chickens. This virus is much larger than the polio virus, but as not large as the virus that causes smallpox. It is deadly because it causes cells to become malignant.</p>	<p>Virus-virus binatang dapat juga dikelompokkan menurut bagian dari sel mereka berkembang dalam dan efek mereka pada sel itu. Beberapa virus bakteri, beberapa virus binatang dapat menghancurkan sel dengan hanya mengakar padanya. Virus yang menghancurkan sel disebut <i>cytocidal</i> atau <i>cell-killing</i>.</p> <p>Hal yang paling mematikan dari virus tumor adalah Rous sarcoma virus, penyakit seseorang yang menginfeksi ayam. Virus ini adalah lebih banyak dari virus lumpuh, tetapi tidak sama besar, seperti virus yang menyebabkan cacar. Adalah mematikan sebab virus ini menyebabkan sel untuk menjadi menular.</p>
<p><b>Paragraph 32</b></p> <p><i>The growth of a tumor virus</i></p> <p>Normally, cells grow in orderly</p>	<p><i>Pertumbuhan sebuah virus tumor</i></p> <p>Secara normal, sel berkembang</p>

arrangements. These orderly arrangements form the tissues of the body. When the arrangements are complete, cell growth slows down; the growth rate of the cells equals the death rate. (Some cells, such as the nerve cell, neither grow nor die. The number remains essentially constant throughout life). In Rous sarcoma virus the cells keep growing after they should have stopped. Instead of forming orderly arrangements, the cells move in every direction, invading other tissues. When vital body organs are invaded, the animal dies.

dalam pengaturan rapi. Pengaturan rapi ini membentuk jaringan dari badan. Ketika pengaturan lengkap, pertumbuhan sel melambat; laju pertumbuhan dari sel yang sama angka kematian. (Beberapa sel, seperti sel syaraf, tidak tumbuh maupun mati. Jumlah tetap sepanjang hidup). Di Rous virus sarcoma terus bertumbuh setelah mereka perlu sudah menghentikan. Sebagai ganti pembentukan pengaturan rapi, sel pindah ke tiap-tiap arah, penyerbuan jaringan lain. Ketika organ badan penting diserbu, binatang mati.

## Key to Formative Test

### *Formative Test 1*

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 12</b></p> <p>Injections ensure that the drug reaches a high concentration in the blood very quickly. Intravenous injections may produce almost instantaneous effects, as mainlining drug abusers know. But no injection is without risk or difficulty. The drug has to be soluble; dosage must be very exact and the injection must take place under sterile conditions. Injections are therefore usually reserved for cases where a rapid effect is essential, or the drug is poorly absorbed from the gut or the patient cannot take it by mouth.</p>	<p>Injeksi menjamin obat mencapai konsentrasi tinggi dalam darah secara cepat. Injeksi intravenous dapat menghasilkan efek pada usus, seperti obat yang disuntikkan ke dalam pembuluh darah vena utama dalam tubuh yang dikenal oleh para penyalah guna obat. Akan tetapi, tidak ada injeksi tanpa risiko atau kesulitan. Obat yang diinjeksikan harus menjadi larut; dosisnya harus sangat tepat dan injeksi harus berada pada tempat yang steril. Injeksi, <u>oleh karena itu</u>, biasanya diperuntukkan bagi kasus, di mana diperlukan efek yang cepat atau obat sulit diserap dari usus atau pasien tidak dapat meminumnya dengan mulut.</p>

#### *Penjelasan:*

Hasil terjemahan di atas sudah baik. Salah satu yang membuatnya baik adalah pada *dikenal oleh para penyalah guna obat*. Dalam bahasa sumber kalimat ini berbentuk aktif, tetapi dalam bahasa sasaran diubah menjadi kalimat pasif untuk memudahkan cara membacanya. Ini adalah bentuk *not restricted by forms*. Sayang sekali, pada kalimat berikutnya, yaitu pada *Injeksi, oleh karena itu, ...* sangat terasa bahwa kalimat ini terikat dengan susunan kalimat bahasa sumber. Dalam bahasa Indonesia, *oleh karena itu*, tidak lazim diletakkan di tengah kalimat, tetapi selalu di awal kalimat dan hal yang kedua ini disebut dengan gejala *restricted by forms*.

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 13</b></p> <p>The taking of drugs by mouth is the most convenient way. Some drugs may be absorbed from the mouth itself (e.g., glyceryl trinitrate tablets are allowed to dissolve under the tongue for the treatment of angina). Most are swallowed and absorbed - from the stomach and intestine. There are some disadvantages to taking drugs by mouth - some drugs may irritate the stomach and produce vomiting; others may be destroyed by the acid in the stomach or by digestive juices. These may need a special coating (called enteric coating) to protect them until they reach the intestine</p>	<p><u>Meminum obat oleh mulut</u> adalah cara yang paling umum. Beberapa obat dapat diserap langsung dari mulut itu sendiri (seperti, tablet gliseril trinitrat diperbolehkan dilarutkan di bawah lidah untuk pengobatan kejang jantung). Kebanyakan obat ditelan dan diserap – dari perut dan usus. Ada beberapa kerugian meminum obat dengan mulut – beberapa obat dapat menyebabkan iritasi pada perut dan menyebabkan muntah; obat-obatan lain dapat dihancurkan oleh asam dalam perut atau oleh getah pencernaan. Obat-obatan seperti ini, membutuhkan lapisan khusus (<u>disebut enteric coating</u>) untuk melindungi obat-obatan ini sampai dapat mencapai usus.</p>

*Penjelasan:*

Hasil terjemahan di atas sudah baik, hanya saja rasanya kurang tepat ungkapan Meminum obat oleh mulut .... Ini adalah salah satu contoh dari *word by word translation*. Hal ini berakibat pada *loss of meaning*. Akan tetapi, penambahan kata *disebut* pada (disebut enteric coating) sangat menarik. Artinya si penerjemah sudah paham dengan bentuk partisium. Kata *disebut* tidak ada dalam bahasa sumber, tetapi keberadaannya buka merupakan suatu bentuk *free translation*.

**Possible Answers**

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 14</b></p> <p>Injections ensure that the drug reaches a high concentration</p>	<p>Injeksi menjamin obat mencapai konsentrasi tinggi dalam darah secara</p>

in the blood very quickly. Intravenous injections may produce almost instantaneous effects, as mainlining drug abusers know. But no injection is without risk or difficulty. The drug has to be soluble; dosage must be very exact and the injection must take place under sterile conditions. Injections are therefore usually reserved for cases where a rapid effect is essential, or the drug is poorly absorbed from the gut or the patient cannot take it by mouth.

cepat. Injeksi intravenus dapat menghasilkan efek pada usus, seperti obat yang disuntikkan ke dalam pembuluh darah vena utama dalam tubuh yang dikenal oleh para penyalah guna obat. Akan tetapi, tidak ada injeksi tanpa risiko atau kesulitan. Obat yang diinjeksikan harus dapat larut; dosisnya harus sangat tepat dan injeksi harus berada pada tempat yang steril. Oleh karena itu, injeksi biasanya diperuntukkan bagi kasus, di mana diperlukan efek yang cepat atau obat sulit diserap dari usus atau pasien tidak dapat meminumnya.

### *Source Language*

#### **Paragraph 15**

The taking of drugs by mouth is the most convenient way. Some drugs may be absorbed from the mouth itself (e.g., glyceryl trinitrate tablets are allowed to dissolve under the tongue for the treatment of angina). Most are swallowed and absorbed - from the stomach and intestine. There are some disadvantages to taking drugs by mouth - some drugs may irritate the stomach and produce vomiting; others may be destroyed by the acid in the stomach or by digestive juices. These may need a special coating (called enteric coating) to protect them until they reach the intestine

### *Target Language*

Mengonsumsi obat dengan cara diminum adalah cara yang paling umum. Beberapa obat dapat diserap langsung dari mulut (seperti, tablet gliseril trinitrat dianjurkan dilarutkan di bawah lidah untuk pengobatan kejang jantung). Kebanyakan obat di telan dan diserap - dari perut dan usus. Ada beberapa kerugian minum obat - beberapa obat dapat menyebabkan iritasi pada perut dan menyebabkan muntah; obat-obatan lain dapat dihancurkan oleh asam dalam perut atau oleh getah pencernaan. Obat-obatan seperti ini, membutuhkan lapisan khusus (disebut *enteric coating*) untuk melindungi obat-obatan ini sampai dapat mencapai usus.

**Formative Test 2**

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 31</b>                      Animal viruses can also be grouped according to the part of the cell they grow in and their effect on the cell. Like some bacterial viruses, some animal viruses can destroy cell simply by growing on them. Viruses that destroy cells are called cytotoxic, or cell-killing.</p> <p>The most deadly of the tumor viruses is the Rous sarcoma virus, one that infects chickens. This virus is much larger than the polio virus, but as not large as the virus that causes smallpox. It is deadly because it causes cells to become malignant.</p>	<p><u>Virus-virus binatang dapat juga dikelompokkan menurut bagian dari sel mereka berkembang dalam dan efek mereka pada sel itu.</u> Beberapa virus bakteri, beberapa virus binatang dapat menghancurkan sel dengan hanya <u>mengakar</u> padanya. Virus yang menghancurkan sel disebut <i>cytotoxic</i> atau <u>cell-killing</u>.</p> <p>Yang paling mematikan dari virus tumor adalah Rous sarcoma virus, <u>penyakit</u> seseorang yang menginfeksi ayam. <u>Virus ini adalah lebih banyak dari virus lumpuh, tetapi tidak sama besar, seperti virus yang menyebabkan cacar.</u> <u>Adalah mematikan sebab virus ini menyebabkan sel untuk menjadi menular.</u></p>

*Penjelasan:*

Hasil terjemahan di atas sangat buruk. Kalimat pertama kesan *word by word translation* sangat kentara, begitu pula pada kalimat terakhir. Kemudian, kata *mengakar* tidak ada dalam bahasa sumber dan ini adalah bentuk *free translation*. Selain itu kesalahan penerjemahan juga menyebabkan *loss of meaning*, seperti pada kata *malignant* yang diterjemahkan menjadi *menular*.

<i>Source Language</i>	<i>Target Language</i>
<p><b>Paragraph 32</b>  <b>The Growth of a Tumor Virus</b>                      Normally, cells grow in orderly arrangements. These orderly arrangements form the tissues of the</p>	<p><b>Pertumbuhan sebuah Virus Tumor</b>                      Secara normal, sel berkembang dalam <u>pengaturan</u> rapi. <u>Pengaturan</u></p>

body. When the arrangements are complete, cell growth slows down; the growth rate of the cells equals the death rate. (Some cells, such as the nerve cell, neither grow nor die. The number remains essentially constant throughout life). In Rous sarcoma virus the cells keep growing after they should have stopped. Instead of forming orderly arrangements, the cells move in every direction, invading other tissues. When vital body organs are invaded, the animal dies.

rapi ini membentuk jaringan dari badan. Ketika pengaturan lengkap, pertumbuhan sel melambat; laju pertumbuhan dari sel yang sama angka kematian. (Beberapa sel, seperti sel syaraf, tidak tumbuh maupun mati. Jumlah tetap sepanjang hidup). Di Rous sarcoma virus terus bertumbuh setelah mereka perlu sudah menghentikan. Sebagai ganti pembentukan pengaturan rapi, sel pindah ke tiap-tiap arah, penyerbuan jaringan lain. Ketika organ badan penting diserbu, binatang mati.

*Penjelasan:*

Seperti pada paragraf sebelumnya, paragraf ini pula sama buruknya. Pemilihan kata, seperti *Normally*, *pengaturan*, *melambat*, dan *penyerbuan* kurang tepat. Ini berkaitan dengan laras bahasa atau register. Selain itu, kalimat pertama juga tidak memiliki makna atau *loss of meaning*. Begitu pula dengan kalimat kedua dan seterusnya. Perhatikan kata *jumlah* dalam *Jumlah tetap ...* juga tidak memiliki makna yang jelas. Kemudian pada *Di Rous sarcoma virus terus*, yang berkembang bukan *virus*, tetapi *sel*.

**Possible Answers**

*Source Language*

**Paragraph 31**

Animal viruses can also be grouped according to the part of the cell they grow in and their effect on the cell. Like some bacterial viruses, some animal viruses can destroy cell simply by growing on them. Viruses that destroy sells are called cyctoidal,

*Target Language*

Virus hewan juga dapat dikelompokkan menurut bagian sel tempat mereka tumbuh dan pengaruhnya terhadap sel tersebut. Seperti halnya beberapa virus bakteri, beberapa virus hewan dapat menghancurkan sel hanya dengan tumbuh di dalamnya. Virus yang menghancurkan sel disebut *cyctoidal*,



or cell-killing. The most deadly of the tumor viruses is the Rous sarcoma virus, one that infects chickens. This virus is much larger than the polio virus, but as not large as the virus that causes smallpox. It is deadly because it causes cells to become malignant.

atau pembunuh sel. Virus tumor yang paling mematikan adalah *virus Rous sarcoma*, yaitu virus yang menginfeksi ayam. Virus ini jauh lebih besar daripada virus polio, tetapi sama besarnya dengan virus yang menyebabkan sakit cacar. Virus ini mematikan karena membuat sel menjadi sangat jahat.

*Source Language*

*Target Language*

**Paragraph 32**

**The Growth of a Tumor Virus**

Normally, cells grow in orderly arrangements. These orderly arrangements form the tissues of the body. When the arrangements are complete, cell growth slows down; the growth rate of the cells equals the death rate. (Some cells, such as the nerve cell, neither grow nor die. The number remains essentially constant throughout life). In Rous sarcoma virus the cells keep growing after they should have stopped. Instead of forming orderly arrangements, the cells move in every direction, invading other tissues. When vital body organs are invaded, the animal dies.

**Pertumbuhan Virus Tumor**

Normalnya, sel tumbuh dalam susunan yang teratur. Susunan yang teratur ini membentuk jaringan-jaringan tubuh. Ketika jaringan ini telah utuh, sel tumbuh dengan lambat, kecepatan pertumbuhan sel sama dengan kecepatan kematian sel. (beberapa sel, seperti sel saraf, baik hidup atau mati. Jumlahnya tetap sepanjang hayat). Pada Rous sarcoma, sel terus tumbuh setelah seharusnya berhenti. Bukannya membentuk susunan yang teratur, sel-sel ini akan bergerak ke segala arah, menyerang jaringan-jaringan lain. Ketika organ vital tubuh terserang, hewan ini mati.

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