Exercises 1-13 on Past Tenses and Mixed Verbal Tenses, Unit 2

Complete the following passage with the appropriate form of *past simple* or *present perfect* – sometimes in its passive voice:

EXERCISE 1

The **smallpox vaccine** …… (**1.** to be) the first vaccine to be developed against a contagious disease. In 1796, the British doctor Edward Jenner …… (**2.** / to demonstrate) that an infection with the relatively mild cowpox virus …… (**3.** / to confer) immunity against the deadly smallpox virus. Cowpox …… (**4.** to serve) as a natural vaccine until the modern smallpox vaccine …… (**5.** to emerge) in the 19th century. From 1958 to 1977, the World Health Organization …… (**6.** to conduct) a global vaccination campaign that eradicate smallpox, making it the only human disease to be eradicated. Although routine smallpox vaccination is no longer performed on the general public, the vaccine is still being produced to guard against bioterrorism and biological warfare.

EXERCISE 2

Ebola Virus Disease (source: https://www.cdc.gov/)
Risk of Exposure – Ebola viruses are found in several African countries. Ebola …… (**1.** first / to be discovered) in 1976 near the Ebola River in what is now the Democratic Republic of the Congo. Since then, outbreaks of Ebola among humans …… (**2.** to appear) sporadically in Africa.
Healthcare providers caring for Ebola patients and family and friends in close contact with Ebola patients are at the highest risk of getting sick because they may come in contact with infected blood or body fluids. Ebola also can be spread through direct contact with objects (like clothes, bedding, needles, syringes/sharps or medical equipment) that …… (**3.** to be contaminated) with infected body fluids. Additionally, people can become sick with Ebola after coming in contact with infected wildlife. For example, in Africa, Ebola may spread as a result of handling bushmeat (wild animals hunted for food) and contact with infected bats.
It is also possible that Ebola could be spread through sex or other contact with semen from men who …… (**4.** to survive) Ebola. Until more information is known, avoid contact with semen from a man who …… (**5.** to have) Ebola. It is not known if Ebola can be spread through sex or other contact with vaginal fluids from a woman who …… (**6.** to have) Ebola.
CDC and other public health partners are continuing to study Ebola transmission and will share what is known as it becomes available.
Past Ebola Outbreaks – Past Ebola outbreaks …… (**7.** to occur) in the following countries: Democratic Republic of the Congo (DRC), Gabon, South Sudan, Ivory Coast, Uganda, Republic of the Congo (ROC), South Africa (imported).
2014 Ebola Outbreak in West Africa – The 2014 Ebola epidemic …… (**7.** to be) the largest in history and …… (**8.** to affect) multiple countries in West Africa. Two imported cases, including one death, and two locally acquired cases in healthcare workers …… (**9.** to be reported) in the United States.

EXERCISE 3

Carl Linnaeus – b: May 23, 1707; d: January 10, 1778 – …… (**1.** to be) a Swedish botanist, physician, and zoologist, who …… (**2.** to lay) the foundations for the modern biological naming scheme of binomial nomenclature. He is known as the father of modern taxonomy, and is also considered one of the fathers of modern ecology. Many of his writings …… (**3.** to be) in Latin.
The establishment of universally accepted conventions for the naming of organisms …… (**4.** to be) Linnaeus' main contribution to taxonomy – his work marks the starting point of consistent use of binomial nomenclature. During the 18th century expansion of natural history knowledge, Linnaeus also …… (**5.** to develop) what …… (**6.** to become) known as the **Linnaean taxonomy** – the system of scientific classification now widely used in the biological sciences.
The Linnaean system …… (**7.** to classify) nature within a nested hierarchy, starting with three kingdoms. *Kingdoms* …… (**8.** to be divided) into *Classes* and they, in turn, into *Orders*, and thence into *Genera*, which …… (**9.** to be divided) into *Species*. Below the rank of species he sometimes …… (**10.** to recognize) *taxa* of a lower unnamed rank; these have since acquired standardised names such as *Variety* in botany and *Subspecies* in zoology. Modern taxonomy includes a rank of *Family* between order and genus and a rank of *Phylum* between Kingdom and Class that …… (**11.** not / to be) present in Linnaeus' original system.
Linnaeus' groupings …… (**12.** to be based) upon shared physical characteristics, and not simply upon differences.

EXERCISE 4

Europe's olive trees threatened by spread of deadly bacteria (source: www.theguardian.com)
Bacteria that is destroying ancient olive groves in the Apulia region of southern Italy is very likely to spread to other areas of Europe, says report.
A killer bacterium that …… (**1.** to affect) several thousand hectares of olive plantations in the Apulia region of Italy is likely to spread to European olive trees, such as these in Corsica.
First it …… (**2.** to be) Europe's ash trees under threat from disease. Now it is the continent's olives in the firing line. A killer pathogen that …… (**3.** to establish) itself in southern Italy is now "very likely" to spread, posing a major risk to European olive trees, according to an assessment by the European Food Safety Authority (Efsa).
Xylella fastidiosa, also known as olive leaf scorch, …… (**4.** to take) hold in the Apulia region at the southernmost tip of Italy, where several thousand hectares of olive plantations are now affected.

EXERCISE 5

Bacteria …… (**1.** first / to be observed) by Antonie van Leeuwenhoek in 1676, using a single-lens microscope of his own design. He …… (**2.** to call) them "animalcules" and …… (**3.** to publish) his observations in a series of letters to the Royal Society. The name *Bacterium* …… (**4.** to be introduced) much later, by Christian Gottfried Ehrenberg in 1828. In fact, *Bacterium* …… (**5.** to be) a genus that …… (**6.** to contain) non-spore-forming rod-shaped bacteria, as opposed to *Bacillus*, a genus of spore-forming rod-shaped bacteria defined by Ehrenberg in 1835.
Though it …… (**7.** to be known) in the nineteenth century that bacteria are the cause of many diseases, no effective antibacterial treatments …… (**8.** to be) available. In 1910, Paul Ehrlich …… (**9.** to develop) the first antibiotic, by changing dyes that selectively

stained *Treponema pallidum* — the spirochaete that causes syphilis — into compounds that selectively …… (**10.** to kill) the pathogen. Ehrlich …… (**11.** to be awarded) a 1908 Nobel Prize for his work on immunology, and …… (**12.** to pioneer) the use of stains to detect and identify bacteria, with his work being the basis of the Gram stain and the Ziehl–Neelsen stain.

EXERCISE 6

The cause of **foot-and-mouth-disease** (FMD) …… (**1.** first / to be shown) to be viral in 1897 by Friedrich Loeffler. He …… (**2.** to pass) the blood of an infected animal through a Chamberland filter and …… (**3.** to find) the collected fluid could still cause the disease in healthy animals.
After World War II, the disease …… (**4.** widely to be distributed) throughout the world. In 1996, endemic areas …… (**5.** to include) Asia, Africa, and parts of South America; as of August 2007, Chile is disease-free, and Uruguay and Argentina …… (**6.** not / to have) an outbreak since 2001. North America and Australia …… (**7.** to be) free of FMD for many years. New Zealand …… (**8.** never / to have) a case of foot-and-mouth disease. Most European countries …… (**9.** to be recognized) as disease-free, and countries belonging to the European Union …… (**10.** to stop) FMD vaccination.

Complete the following passages with the appropriate form of *present simple*, *past simple* or *present perfect* – sometimes in its passive voice:

EXERCISE 7

Diabetes mellitus, often simply referred to as diabetes, …… (**1.** to be) a condition in which a person/an animal …… (**2.** to have) a high blood sugar (glucose) level as a result of the body either not producing enough insulin, or because body cells …….. (**3**. not/ to respond/ properly) to the insulin that is produced.
All forms of diabetes have been treatable since insulin …… (**4.** to become) medically available in 1921, but a cure …… (**5.** to be) difficult.

EXERCISE 8

Rabies is a disease that …… (**1.** to cause) acute encephalitis – i.e., inflammation of the brain – in warm-blooded animals. It …… (**2.** to be) zoonotic, most commonly by a bite from an infected animal but occasionally by other forms of contact.
Because of its potentially violent nature, rabies …… (**3.** to be) known since 3500 B.C. Rabies …… (**4.** to be) considered a scourge for its prevalence in the 19th century. Fear of rabies related to methods of transmissions …… (**5.** to be) almost irrational; however, this …… (**6.** to give) Louis Pasteur ample opportunity to test post-exposure treatments from 1885.

EXERCISE 9

Louis Pasteur (December 27, 1822 – September 28, 1895) …… (**1.** to be) a French chemist and microbiologist born in Dole. He …… (**2.** to be) remembered for his remarkable breakthroughs in the causes and preventions of disease. His discoveries …… (**3.** to reduce) mortality from puerperal fever, and he …… (**4.** to create) the first vaccine for rabies.
His experiments …… (**5.** to support) the germ theory of disease. He …… (**6.** / to be) best known to the general public for inventing a method to stop milk and wine from causing sickness, a process that came to be called pasteurization.
He …… (**7.** to be) regarded as one of the three main founders of microbiology, together with Ferdinand Cohn and Robert Koch. Pasteur also …… (**8.** to make) many discoveries in the field of chemistry, most notably the molecular basis for the asymmetry of certain crystals.

EXERCISE 10

Bluetongue disease or **catarrhal fever** …… (**1.** to be) a non-contagious, insect-borne viral disease of ruminants, mainly sheep and less frequently of cattle, goats, buffalo, deer, dromedaries and antelope. It …… (**2.** to be) caused by the Bluetongue virus.
Bluetongue virus …… (**3.** to cause) serious disease in livestock. Partly due to this, BTV …… (**4.** to be) in the forefront of molecular studies for last three decades and now …… (**5.** to represent) one of the best understood viruses at the molecular and structural levels.

EXERCISE 11

In modern molecular biology, the **genome** …… (**1.** to be) the entirety of an organism's hereditary information. It …… (**2.** to be) encoded either in DNA or, for many types of virus, in RNA. The genome …… (**3.** to include) both the genes and the non-coding sequences of the DNA. The term …… (**4.** to be) adapted in 1920 by Hans Winkler, Professor of Botany at the University of Hamburg, Germany.

EXERCISE 12

Severe acute respiratory syndrome (**SARS**) …… (**1.** to be) a viral respiratory disease of zoonotic origin that …… (**2.** to surface) in the early 2000s caused by severe acute respiratory syndrome coronavirus (SARS-CoV or SARS-CoV-1), the first-identified strain of the SARS coronavirus species severe acute respiratory syndrome-related coronavirus (SARSr-CoV). The syndrome …… (**3.** to cause) the 2002-2004 SARS outbreak. In late 2017, Chinese scientists …… (**4.** to trace) the virus through the intermediary of civets to cave-dwelling horseshoe bats in Yunnan province. No cases of the first SARS-CoV …… (**5.** to be reported) worldwide since 2004.
In 2019, its successor, the related virus strain severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), …… (**6.** to be discovered). This new strain causes COVID-19, a disease which …… (**7.** to bring about) the COVID-19 pandemic.

EXERCISE 13

Most emerging **infectious diseases** – such as Lassa fever, Marburg haemorrhagic fever, Nipah viral infections and other viral diseases – …….. (**1.** to have) wildlife origins. Within the coronavirus family, zoonotic viruses …….. (**2.** to be linked) to the severe acute respiratory syndrome (SARS) epidemic in 2003 and the Middle East respiratory syndrome (MERS), which …….. (**3**. to be detected / first) in 2012. The COVID-19 pandemic …….. (**4**. to stem) from the introduction of the novel coronavirus, SARS-CoV-2, into human populations. Although the specific mechanism of SARS-CoV-2 emergence …… (**5.** not / to be identified / definitively), at some point or over time, interactions may have occurred that …….. (**6**. to allow) for cross- and perhaps multiple-species pathogen transmission. The World Health Organization (WHO), the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (OIE) and the United Nations Environment Programme (UNEP) …… (**7.** to recognize) the repeated emergence of zoonotic diseases and the linkages of some of them along the value chain of the wildlife trade.