Technical English Level 4

Progress Test 2 (Units 3-4)

Answer all the questions.

Section 1: Vocabulary

1 Complete the paragraph with words form the box. There are some EXTRA words you do not need.

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| --- |
| relinquishes/interprets/mechanism/activates/actuator/controls/retains/detects/regains/controller/computerised/establishes/counteracts/ |

‘*By-wire’* systems are (1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ control systems often used in vehicles and aircraft. An electronic sensor (2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ movement of the accelerator pedal in a car and sends a signal to the (3) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which (4) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the data and sends instructions to a tiny motor or (5) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. In an aircraft, the pilot first

(6) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ flight details and then (7) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ control of the flight to the computer system. He (8) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ control by overriding the autopilot at any time.

He also (9) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ control until he (10) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the autopilot again.

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2 Complete these sentences with a noun derived from a phrasal verb. The first letter is given.

11 The b\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of pressure caused the valve to blow.

12 Our flight should have left at 7am but the t\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ was delayed until midday.

13 The i\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mechanism for the cruise control is the accelerator pedal.

14 There were too many people at the conference so the o\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ had to be accommodated in another room.

15 The t\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of our competitor gave us the technical expertise our company needed.

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Section 2: Language

3 Complete the paragraph by putting ONE word in each gap.

We are having problems with one of the machines at the factory at the moment. Until now, our investment in sophisticated machinery has paid (16) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – increasing our capacity by 25%. (17) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when it breaks (18) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, it’s a different matter. Now, (19) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the machine is being (20) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ out by the engineers, we are doing everything we can to avoid shutting the factory (21) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ completely as we have very full order books. The engineers are (22) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ out extensive tests to (23) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ out the cause of the fault. (24) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ we have had problems with this machine in the past, it has never been this bad. Last time we managed to carry (25) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ production

(26) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ this time it has interrupted production quite considerably so we can’t (27) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ out being unable to supply our customers for the rest of the week. I am putting (28) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ making a final decision about that until the engineers get (29) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to me. I have just taken (30) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ several new staff and if the factory closes we will have to pay them for nothing. Let’s hope the engineers can solve the problem quickly.

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Section 3: Reading

4 Read the text below and decide if these statements are True (T), False (F) or Not Given (NG)

31 The Standard Theory proves the Theory of Relativity. \_\_\_\_\_\_\_\_

32 The Standard Theory deals with all the basic forces of the universe. \_\_\_\_\_\_\_\_

33 The Higgs boson particle is a subatomic particle. \_\_\_\_\_\_\_\_

34 The LHC consists of three main sections. \_\_\_\_\_\_\_\_

35 The Grid consists of the greatest computing power in world. \_\_\_\_\_\_\_\_

36 There is less pressure on the moon than in the LHC. \_\_\_\_\_\_\_\_

37 More than 11,000 collisions happen every second in the LHC. \_\_\_\_\_\_\_\_

38 Particles are guided round the collider by magnets. \_\_\_\_\_\_\_\_

39 Liquid nitrogen is used to cool the magnets. \_\_\_\_\_\_\_\_

40 The experiment has confirmed the existence of the Higgs boson. \_\_\_\_\_\_\_\_

**THE LARGE HADRON COLLIDER**

The Large Hadron Collider (LHC) was created to help physicists around the world answer basic questions about the universe. Up to now, scientists have developed the Standard Theory, which tries to define and explain fundamental particles that make up the universe. The theory combines elements form Einstein’s Theory of Relativity with Quantum Theory, dealing with three of the four basic forces of the universe: strong nuclear force, weak nuclear force and electromagnetic force. The only one it doesn’t address is gravity. Their prime target is a theoretical particle known as the Higgs boson whose existence they hope will be confirmed by the collider experiments.

The Large Hadron Collider is the world’s largest and higher energy particle accelerator. It weighs more than 38,000 tonnes and the 27km tunnel is buried 100 metres underground. However, the collider is only one part of the LHC project as there are also the detectors, which are located in large chambers around the tunnel, and the global network of computers known as the Grid. The detectors job is to track the motion of the particle beams and measure the energy and charge of the new particles created by the collisions. The Grid is the way in which information is shared through the internet and the world wide web so that CERN can share global computing power.

The LHC uses 10,080 tonnes of liquid nitrogen and is filled with nearly 60 tonnes of liquid helium. The internal pressure of the LHC is 10-13 atm, ten times less than the pressure on the moon and temperatures 100,000 times hotter than the centre of the sun can be reached inside the collider. The LHC has two functions: to accelerate particles to high speed beams about 2mm wide and to direct them to collide head-on. At full power, trillions of particles race around the tunnel 11245 times a second, 99.99% the speed of light and 600 million collisions occur every second. The 9,300 superconducting magnets are pre-cooled to -193ºC and they steer and focus the particle beams as they speed round the tunnel in opposite directions. When the beams collide, they briefly share the same pipes enclosed by the magnets and are cooled to 1.9K

 (-271.3ºC) by the liquid helium.

Has it achieved its purpose? Well from the data collected so far there are signs that they may be close to finding the Higgs boson, but scientists hope that it will also throw up more questions and information which they haven’t yet considered.

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Section 4: Writing

5 Use the notes to write a product recall notice from XBZ Cars.

41/42 XBZ Cars/recall/model 050/potential problem/brakes

43/44 rare instances//braking mechanism/stuck/car/unable/move

45/46 no accidents/reported/advise customers/contact local dealer

47/48 free inspection/carry out/precaution

49/50 XBZ/safety/very seriously/apologise/inconvenience

41/42 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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43/44 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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45/46 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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47/48\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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49/50 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Section 5: Listening

Track 3

6 Listen to the recording twice and decide if these statements are True (T), False (F) or Not Given (NG).

51 The lecture series is about cable communication. \_\_\_\_\_\_

52 The first section of the talk analyses spacecraft computer systems. \_\_\_\_\_\_

53 Aircraft and cars have similar input and output mechanisms. \_\_\_\_\_\_

54 Wing surfaces are the main output mechanism for steering an aircraft. \_\_\_\_\_\_

55 Actuators are tiny motors which have been especially created for use

 in aircraft and cars. \_\_\_\_\_\_

56 The autopilot is used on all commercial aircraft. \_\_\_\_\_\_

57 The pilot has total control in the fly-by-wire system. \_\_\_\_\_\_

58 In autopilot mode, the computer determines the flight course. \_\_\_\_\_\_

59 Cruise control mode can be overridden at any time by the driver. \_\_\_\_\_\_

60 In autopilot mode, the computer steers the aircraft. \_\_\_\_\_\_

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