STUDENT TEST BOOKLET

READING SECTION

READING PASSAGE 1

The Quiet Revolution: The Dawn of the Electric Vehicle

The story of the electric vehicle (EV) is not a modern one. In fact, its origins can be traced back to the early 19th century, a period of immense innovation and experimentation. Long before the roar of the internal combustion engine dominated our streets, inventors were captivated by the potential of electricity to power transportation. The first crude electric carriage was built by Scottish inventor Robert Anderson sometime between 1832 and 1839. This early prototype, powered by non-rechargeable primary cells, was more of a novelty than a practical mode of transport, but it planted a seed that would take over a century to fully blossom.

By the late 1800s, electric vehicles had become a more viable proposition. Innovators in Hungary, the Netherlands, and the United States developed various types of electric-powered carts and carriages. A significant breakthrough came in 1859 with the invention of the rechargeable lead-acid battery by French physicist Gaston Planté. This development made electric vehicles a more practical and appealing option. In the United States, the first successful electric car was introduced around 1890 by William Morrison, a chemist from Des Moines, Iowa. His vehicle was a six-passenger wagon capable of reaching a speed of 14 miles per hour, a remarkable feat for its time. It was this success that truly sparked interest in electric-powered transportation across America.

At the turn of the 20th century, electric cars were in their heyday. They were quiet, easy to operate, and did not emit the smelly pollutants of their gasoline-powered counterparts. Unlike steam-powered cars, they didn't require a long start-up time, and they were significantly less strenuous to drive than gasoline cars, which required a hand crank to start the engine and had a complex system of gears and levers. For these reasons, they were particularly popular with urban residents and women. However, the tide began to turn against electric vehicles with the introduction of two key innovations: the mass-produced Ford Model T in 1908, which made gasoline cars affordable for the average consumer, and the invention of the electric starter in 1912, which eliminated the need for the hand crank. The discovery of large oil reserves in Texas and other parts of the world also made gasoline cheap and widely available, further solidifying the dominance of the internal combustion engine for decades to come.

Questions 1-13

Questions 1-6

Do the following statements agree with the information given in Reading Passage 1?

In boxes 1-6 on your answer sheet, write

- **TRUE** if the statement agrees with the information
- **FALSE** if the statement contradicts the information
- **NOT GIVEN** if there is no information on this*

1 The first electric vehicle was invented in the 20th century. **2** Robert Anderson's electric carriage was a commercial success. **3** The invention of the rechargeable battery was crucial for the development of practical electric vehicles. **4** William Morrison's electric car was faster than any other vehicle of its time. **5** Electric cars were initially more popular in rural areas. **6** The Ford Model T was cheaper than most electric cars of the same period.

Questions 7-10

Choose the correct letter, ***A, B, C*** *or* ***D****.*

Write the correct letter in boxes 7-10 on your answer sheet.

7 Who is credited with building the first rudimentary electric carriage?

```
A   Gaston Planté
B   William Morrison
C   Robert Anderson
D   Henry Ford
```

8 What was a major advantage of early electric cars over gasoline cars?

```
A   They were faster.
B   They were easier to start and operate.
C   They had a longer range.
D   They were less expensive.
```

9 The popularity of electric vehicles declined due to…

```
A   a lack of public interest.
B   the high cost of electricity.
C   the invention of the electric starter and mass-produced gasoline cars.
D   a series of accidents involving electric vehicles.
```

10 According to the passage, what made gasoline a more attractive fuel source?

```
A   It was more environmentally friendly.
B   It was heavily promoted by the government.
C   It was discovered in large quantities, making it inexpensive.
D   It was more efficient than electricity.
```

Questions 11-13

Complete the summary below.

Choose ***NO MORE THAN TWO WORDS*** *from the passage for each answer.*

Write your answers in boxes 11-13 on your answer sheet.

The Rise and Fall of Early Electric Vehicles

The first electric carriage, a simple prototype, was developed by Robert Anderson and was powered by **11** __________. A major advancement occurred with the invention of the rechargeable lead-acid battery, making EVs a more **12** __________ option. At the beginning of the 20th century, electric cars were popular, especially with **13** __________ and women, due to their ease of use. However, the affordability of the Ford Model T and the invention of the electric starter led to the dominance of gasoline-powered vehicles.

READING PASSAGE 2

Anatomy of an Electric Vehicle: Powering the Future

A Modern electric vehicles (EVs) represent a paradigm shift in automotive engineering, moving away from the complex mechanical systems of internal combustion engines to a more streamlined, electrically powered design. At the heart of this design is the battery pack, the EV's equivalent of a fuel tank. These are not the simple lead-acid batteries of the past; today's EVs rely on sophisticated lithium-ion battery packs. These packs are composed of hundreds, sometimes thousands, of individual battery cells, all managed by a complex battery management system (BMS). The BMS is the unsung hero of the EV, responsible for monitoring the state of charge, temperature, and health of each cell to optimize performance and ensure safety.

B The energy stored in the battery pack is used to power the electric motor, which is the powerhouse of the EV. Unlike internal combustion engines, which have hundreds of moving parts, electric motors are remarkably simple and efficient. They can be of two main types: AC (alternating current) or DC (direct current) motors. Most modern EVs use AC motors, which are known for their reliability and high efficiency. The motor converts electrical energy from the battery into mechanical energy to turn the wheels. This process is incredibly efficient, with electric motors converting over 85% of electrical energy into mechanical energy, compared to just 20-30% for gasoline engines.

C Another key component of the EV drivetrain is the inverter. The battery pack stores energy as direct current (DC), but most modern electric motors run on alternating current (AC). The inverter's job is to convert the DC power from the battery into AC power for the motor. It also plays a crucial role in regenerative braking, a feature that significantly enhances the efficiency of EVs. When the driver lifts their foot off the accelerator or applies the brakes, the inverter can change the direction of energy flow, converting the car's kinetic energy back into electrical energy, which is then stored in the battery. This process helps to extend the vehicle's range and reduce wear on the traditional braking system.

D Of course, an electric vehicle is only as good as its ability to be recharged. The charging system is a critical part of the EV ecosystem. There are three main levels of charging. Level 1 charging uses a standard household outlet (120V in the US) and is the slowest method, often taking over 24 hours to fully charge a vehicle. Level 2 charging, which uses a 240V outlet (similar to an electric dryer), is much faster, typically providing a full charge in 4-8 hours. This is the most common type of home charging. Finally, DC fast charging, or Level 3 charging, can provide an 80% charge in as little as 20-30 minutes. These chargers are found at public charging stations and are essential for long-distance travel.

E The rapid evolution of battery technology is a key driver of the electric vehicle revolution. Researchers are constantly working to improve the energy density of batteries, which is the amount of energy they can store for a given size and weight. Higher energy density means a longer range for the vehicle. Another area of focus is reducing the cost of batteries, which still account for a significant portion of the total cost of an EV. The use of cobalt, a rare and expensive material, is a particular challenge, and scientists are exploring new battery chemistries that use less or no cobalt.

F Beyond the individual components, the overall design and integration of these systems are what make modern EVs so impressive. The placement of the heavy battery pack low in the vehicle's chassis lowers the center of gravity, improving handling and stability. The simplicity of the electric motor allows for more design freedom, with some EVs offering front and rear trunks for extra storage. As technology continues to advance, we can expect to see even more innovative designs and capabilities in the electric vehicles of the future.

Questions 14-26

Questions 14-19

*Reading Passage 2 has six paragraphs, **A-F**.*

Choose the correct heading for each paragraph from the list of headings below.

*Write the correct number, **i-viii**, in boxes 14-19 on your answer sheet.*

List of Headings

i The future of EV design **ii** The role of the inverter and regenerative braking **iii** The different methods of charging an EV **iv** The challenges of battery development **v** The heart of the EV: the battery pack **vi** How the electric motor works **vii** The environmental benefits of EVs **viii** The importance of the battery management system

14 Paragraph A **15** Paragraph B **16** Paragraph C **17** Paragraph D **18** Paragraph E **19** Paragraph F

Questions 20-23

*Choose the correct letter, **A, B, C** or **D**.*

Write the correct letter in boxes 20-23 on your answer sheet.

20 What is the main function of the Battery Management System (BMS)?

```
A   To convert DC power to AC power.
B   To monitor and manage the battery pack's health and performance.
C   To provide power directly to the wheels.
D   To cool the electric motor.
```

21 Electric motors are more efficient than gasoline engines because…

```
A   they are smaller and lighter.
B   they convert a higher percentage of electrical energy into mechanical
energy.
C   they run on alternating current.
D   they have more moving parts.
```

22 Regenerative braking…

```
A   is a type of emergency braking system.
B   uses friction to slow the car down.
C   converts kinetic energy into electrical energy to recharge the battery.
D   is only available on high-end electric vehicles.
```

23 What is the most common method for home charging an EV?

```
A   Level 1 charging
B   Level 2 charging
C   Level 3 charging
D   DC fast charging
```

Questions 24-26

Complete the sentences below.

Choose ***NO MORE THAN THREE WORDS*** *from the passage for each answer.*

Write your answers in boxes 24-26 on your answer sheet.

24 The amount of energy a battery can store for its size and weight is known as its ________________. **25** A major challenge in battery production is the use of ________________, which is a rare and costly material. **26** The low placement of the battery pack in an EV improves its ________________.

READING PASSAGE 3

The Electric Vehicle Conundrum: A Sustainable Choice or a Hidden Compromise?

Electric vehicles are widely touted as a cornerstone of a sustainable future, a clean and green alternative to their fossil-fuel-guzzling predecessors. Proponents paint a picture of cities with pristine air, free from the smog and noise of internal combustion engines. While it is true that EVs produce zero tailpipe emissions, which significantly improves urban air quality and reduces localized pollution, a more comprehensive examination of their entire life cycle reveals a more complex and nuanced environmental picture. The assertion that EVs are a perfect solution is a simplification that overlooks critical aspects of their production and energy supply chain.

One of the most significant, yet often overlooked, environmental impacts of electric vehicles is the ‘long tailpipe’ effect. This refers to the emissions generated during the production of the electricity used to charge the vehicle. The environmental credentials of an EV are intrinsically linked to the carbon intensity of the electrical grid it draws from. In regions that rely heavily on fossil fuels like coal and natural gas for electricity generation, the act of charging an EV can still result in substantial carbon dioxide emissions. Therefore, the true climate benefit of an EV is not universal; it is highly dependent on the energy mix of the region in which it operates. The transition to EVs must, in essence, be coupled with a transition to renewable energy sources for the grid to be truly effective.

Furthermore, the heart of every electric vehicle—the battery—carries its own significant environmental baggage. The production of lithium-ion batteries is a resource-intensive process. It requires the mining of raw materials such as lithium, cobalt, and nickel, often in countries with lax environmental regulations. These mining operations can lead to water pollution, habitat destruction, and soil degradation.

Cobalt mining, in particular, is fraught with ethical concerns, including issues of child labor and unsafe working conditions. The manufacturing process itself is also energy-intensive, meaning that an EV starts its life with a larger carbon footprint than a conventional car. It can take several years of zero-emission driving before this initial 'carbon debt' is paid off.

Finally, the end-of-life for an EV battery presents a formidable challenge. While EV batteries are designed to last for many years, they eventually degrade and need to be replaced. The recycling of these complex, high-voltage batteries is still in its infancy. Current recycling processes are often inefficient, costly, and can release toxic substances if not handled correctly. While many companies are working on developing better recycling methods and creating a circular economy for battery materials, a robust and scalable recycling infrastructure is not yet in place. This raises concerns about a future where millions of spent EV batteries could end up in landfills, posing a long-term environmental threat.

In conclusion, while electric vehicles hold immense promise for reducing our reliance on fossil fuels and cleaning up our cities, they are not a silver bullet for our environmental woes. A holistic view reveals that their sustainability is contingent on a number of factors, including the decarbonization of our electricity grid, the development of more sustainable and ethical battery production methods, and the establishment of an effective battery recycling ecosystem. The road to a truly sustainable transportation future is not just electric; it is a complex and multifaceted journey that requires systemic change across multiple sectors.

Questions 27-40

Questions 27-32

Do the following statements agree with the claims of the writer in Reading Passage 3?

In boxes 27-32 on your answer sheet, write

- **YES** if the statement agrees with the claims of the writer
- **NO** if the statement contradicts the claims of the writer
- **NOT GIVEN** if it is impossible to say what the writer thinks about this*

27 The writer believes that electric vehicles are a flawless solution to environmental problems. **28** The environmental impact of an EV is the same regardless of where it is charged. **29** The production of an electric vehicle has a larger initial carbon footprint than that of a gasoline car. **30** The writer claims that cobalt mining is managed with strict ethical and environmental standards globally. **31** Current methods for recycling EV batteries are highly efficient and widely available. **32** The writer suggests that a sustainable transport system requires more than just a switch to electric vehicles.

Questions 33-36

*Choose the correct letter, **A, B, C** or **D**.*

Write the correct letter in boxes 33-36 on your answer sheet.

33 What does the 'long tailpipe' effect refer to?

```
A    The zero emissions from the EV itself.
B    The process of recycling EV batteries.
C    The emissions created from electricity generation for charging EVs.
D    The extended lifespan of an electric motor.
```

34 According to the passage, what is a major issue associated with the production of EV batteries?

```
A    They are not powerful enough for modern vehicles.
B    The resource-intensive and ethically questionable mining of raw
materials.
C    A lack of technological innovation in battery design.
D    The batteries have a very short lifespan.
```

35 The environmental benefit of an EV is maximized when…

```
A    it is driven for short distances only.
B    it is charged using electricity from renewable sources.
C    its battery is replaced frequently.
D    it is manufactured in a country with low labor costs.
```

36 What is the primary challenge concerning the end-of-life of an EV battery?

```
A   They are difficult to remove from the vehicle.
B   They can be easily refurbished and sold.
C   There is a lack of a robust and scalable recycling infrastructure.
D   They pose no environmental risk when disposed of in landfills.
```

Questions 37-40

Complete the notes below.

Choose ***NO MORE THAN TWO WORDS*** *from the passage for each answer.*

Write your answers in boxes 37-40 on your answer sheet.

Environmental Issues of Electric Vehicles

- **Production Phase:**
    - The manufacturing process creates a large initial **37** ___________.
    - Mining for materials like lithium and cobalt can cause habitat destruction and **38** ___________.
- **Usage Phase:**
    - The 'long tailpipe' effect means emissions are dependent on the regional **39** ___________.
- **Disposal Phase:**
    - A significant challenge is the lack of infrastructure for battery **40** ___________.

LISTENING SECTION

SECTION 1 Questions 1-10

Complete the form below.

Write ***NO MORE THAN TWO WORDS AND/OR A NUMBER*** *for each answer.*

Electric Car Share - Membership Application

Name:	**Sarah 1 ____________**
Address:	15, **2** ____________ Road, Bristol
Postcode:	BS1 4TP
Phone Number:	**3** ____________
Email Address:	sarah.c@email.com
Driving License Number:	**4** ____________
Desired Membership Level:	**5** ____________
How did you hear about us?	**6** ____________
Reason for joining:	To save money on **7** ____________
Main usage time:	**8** ____________
Special requirements:	Needs a car with a **9** ____________
Promotional Code:	**10** ____________

SECTION 2 Questions 11-20

Questions 11-15

*Choose the correct letter, **A, B** or **C**.*

11 The speaker, David, is the founder of a company that…

```
A   sells electric bicycles.
B   converts gasoline cars to electric.
C   installs home charging stations.
```

12 What is the main advantage of the company's service?

```
A   It is the cheapest option available.
B   It is a very fast process.
C   It allows people to keep their existing cars.
```

13 The conversion process is most suitable for…

```
A   small, lightweight cars.
B   large, heavy-duty trucks.
C   luxury sports cars.
```

14 The typical range of a converted car is…

```
A   50-80 miles.
B   100-150 miles.
C   200-250 miles.
```

15 The company offers a warranty on…

```
A   the entire car.
B   the electric motor and battery.
C   the paint and bodywork.
```

Questions 16-20

What feature is mentioned for each of the following car models?

*Choose **FIVE** answers from the box and write the correct letter, **A-G**, next to questions 16-20.*

Features
A - Best for city driving
B - Longest range
C - Most affordable conversion
D - Fastest acceleration
E - Most spacious interior
F - Easiest to maintain
G - Classic design

Car Models

16 VW Beetle ____________ **17** Mini Cooper ____________ **18** Land Rover Defender ____________ **19** Porsche 911 ____________ **20** Ford Transit Van ____________

SECTION 3 Questions 21-30

Choose the correct letter, ***A, B*** *or* ***C****.*

21 The students, Chloe and Tom, are discussing a presentation on…

```
A   the history of electric vehicles.
B   the future of battery technology.
C   the challenges of wireless charging for EVs.
```

22 What is the main problem with current wireless charging technology?

```
A   It is too expensive to install.
B   It is inefficient and slow.
C   It is dangerous for users.
```

23 Chloe is particularly interested in…

```
A   static wireless charging.
B   dynamic wireless charging.
C   portable wireless chargers.
```

24 Dynamic wireless charging would allow EVs to…

```
A   charge while parked in a special bay.
B   charge from a home wireless unit.
C   charge while driving on the road.
```

25 Tom is concerned that dynamic wireless charging could…

```
A   be a distraction for drivers.
B   be very expensive to implement on a large scale.
C   damage the road surface.
```

26 The professor suggests they should focus their presentation on…

```
A   the technical specifications of wireless chargers.
B   the economic feasibility of implementing the technology.
C   a comparison of different wireless charging standards.
```

27 Which country is mentioned as a leader in dynamic charging research?

```
A   Japan
B   Germany
C   South Korea
```

28 What is a potential benefit of widespread wireless charging?

```
A   EVs could have smaller, lighter batteries.
B   EVs would become much cheaper.
C   Gasoline cars could be easily converted.
```

29 The students decide to research the environmental impact of…

```
A   manufacturing wireless charging pads.
B   the electricity used for wireless charging.
C   disposing of old charging equipment.
```

30 For the next stage of their project, Chloe and Tom will…

```
A   build a model of a wireless charging system.
B   interview an expert in the field.
C   create a survey to gauge public opinion.
```

SECTION 4 Questions 31-40

Complete the notes below.

*Write **NO MORE THAN TWO WORDS** for each answer.*

Lecture on Vehicle-to-Grid (V2G) Technology

Introduction

- V2G allows electric vehicles to communicate with the **31** ____________.
- EVs can act as a collective energy storage system.

How it Works

- Requires a **32** ____________ charger.
- EV owners can choose when to charge and when to sell energy back to the grid.
- This helps to balance **33** ____________ on the grid.

Benefits for the Grid

- Provides a buffer during times of high energy demand.
- Can help to integrate more **34** ____________ into the grid.
- Reduces the need to build new **35** ____________.

Benefits for EV Owners

- Can earn money by selling excess energy.
- This can help to offset the **36** ____________ of owning an EV.
- The process is managed automatically by a **37** ____________.

Challenges and Concerns

- The main concern is the potential for increased **38** ____________.
- Need for standardized communication protocols.
- **39** ____________ is a major hurdle to widespread adoption.

Conclusion

- V2G technology has the potential to be a **40** ____________ for both the energy and transport sectors.

WRITING SECTION

WRITING TASK 1

You should spend about 20 minutes on this task.

The chart below shows the sales of electric vehicles and gasoline vehicles in Europe from 2015 to 2025 (projected).

Summarise the information by selecting and reporting the main features, and make comparisons where relevant.

Write at least 150 words.

(A bar chart would be displayed here showing two bars for each year - one for electric vehicle sales and one for gasoline vehicle sales. The Y-axis would represent sales in millions of units. The data would show a steady decline in gasoline vehicle sales and a sharp increase in electric vehicle sales, with EVs overtaking gasoline cars in the projected years.)

Example Data for Chart:

Year	Gasoline Vehicle Sales (millions)	Electric Vehicle Sales (millions)
2015	14.2	0.5
2018	12.8	1.2
2021	10.5	3.8
2025 (projected)	6.1	9.5

WRITING TASK 2

You should spend about 40 minutes on this task.

Write about the following topic:

Many governments around the world are offering financial incentives, such as tax credits and subsidies, to encourage people to buy electric vehicles.

Do the advantages of such policies outweigh the disadvantages?

Give reasons for your answer and include any relevant examples from your own knowledge or experience.

Write at least 250 words.

SPEAKING SECTION

PART 1

The examiner will ask you some general questions about yourself and then ask you some questions about the topic.

Let's talk about cars and transportation.

1. Do you own a car? What kind of car is it?
2. How do you usually travel around your city or town?
3. Have you ever travelled in an electric vehicle? What was it like?
4. What do you think are the main benefits of driving an electric car?

5. Do you think electric cars will become more popular in your country in the future? Why?

PART 2

You will have to talk about the topic on the card for one to two minutes. You have one minute to think about what you are going to say. You can make some notes to help you if you wish.

Describe an experience you have had with an electric vehicle.

You should say:

- when and where this was
- what kind of electric vehicle it was
- what you did with the vehicle

and explain how you felt about the experience.

PART 3

The examiner will ask you some more general questions which follow on from the topic in Part 2.

Discussion questions:

1. What are the biggest challenges preventing the widespread adoption of electric vehicles?
2. Do you think governments should do more to promote the use of electric cars? What kind of measures could they take?
3. How will the rise of electric vehicles change our cities and the way we live?
4. Some people say that the environmental benefits of electric cars are exaggerated. What is your opinion?
5. What do you think the future of personal transportation will look like in the next 50 years?

GRAMMAR SECTION

Questions 1-20

Questions 1-5: Error Correction

Identify the error in each sentence and rewrite it correctly.

1. The number of electric cars on the road are increasing every year.
2. Despite of the high initial cost, many people are choosing to buy electric vehicles.
3. The government should provide more incentives for to encourage the adoption of EVs.
4. Electric cars are much more quieter than traditional gasoline-powered cars.
5. I have been read a lot about the environmental benefits of electric vehicles recently.

Questions 6-10: Sentence Transformation

Complete the second sentence so that it has a similar meaning to the first sentence, using the word given. Do not change the word given. You must use between three and six words, including the word given.

1. The government is making it easier for people to install home chargers. (**BEING**) It ________________ easier for people to install home chargers.

2. Electric cars were not as popular in the past. (**USED**) Electric cars ________________ as popular as they are today.

3. The high cost of batteries is a major challenge for the EV industry. (**FACE**) The EV industry ________________ the high cost of batteries.

4. It is expected that the price of electric cars will fall in the next few years. (**EXPECTED**) The price of electric cars ________________ in the next few years.

5. If you don't charge the car overnight, it won't have enough range for a long trip. (**UNLESS**) The car won't have enough range for a long trip ________________ it overnight.

Questions 11-15: Fill in the Blanks

Complete the sentences with the correct form of the verb, an article, or a preposition.

1. The first electric car ________________ (invent) in the 19th century.
2. Many people are concerned ________________ the environmental impact of battery production.
3. ________________ new generation of solid-state batteries promises to be safer and more efficient.
4. By the time I arrived, the charging station ________________ (already/be) occupied.
5. I'm thinking of ________________ (buy) an electric car next year.

Questions 16-20: Word Formation

Use the word in capitals to form a word that fits in the gap in the same line.

1. The ________________ of the internal combustion engine has dominated transportation for over a century. **DOMINATE**
2. The government is offering financial ________________ to encourage people to switch to EVs. **INCENTIVE**
3. The ________________ of a nationwide charging network is essential for the widespread adoption of electric cars. **DEVELOP**
4. Many car manufacturers are now focusing on the ________________ of electric models. **PRODUCE**
5. The ________________ of electric vehicles is expected to reduce air pollution in cities. **POPULAR**

LISTENING SCRIPTS

SECTION 1

(Sound of a phone ringing)

Agent: Good morning, Electric Car Share, how can I help you?

Sarah: Oh, hello. I'm calling to inquire about joining your car-sharing service.

Agent: Of course. I can help you with that. Could I take your name, please?

Sarah: Yes, it's Sarah Connolly. That's C-O-N-N-O-L-L-Y.

Agent: Thank you, Sarah. And could I have your address?

Sarah: It's 15, **Park** Road, Bristol.

Agent: Park Road. Got it. And the postcode?

Sarah: BS1 4TP.

Agent: Great. And a contact phone number?

Sarah: My mobile is **07700 900 821**.

Agent: 07700 900 821. Perfect. Now, I'll just need a few more details for your application. What's your driving license number?

Sarah: It's **SC58 2910 6B**.

Agent: SC58 2910 6B. Thank you. We offer a few different membership levels. Have you had a look at them on our website?

Sarah: I have. I think the **Premium** membership would be best for me, as I'll probably be using the cars quite frequently.

Agent: Good choice. That's our most popular option. And how did you hear about us, Sarah?

Sarah: I saw an advert on a **local bus**.

Agent: Excellent. We've just started advertising there. And what's your main reason for joining?

Sarah: Well, I've just sold my car, so I'm hoping to save money on **running costs**.

Agent: You certainly will. Our members save an average of £2,000 a year. When do you think you'll be using the cars most?

Sarah: Mostly on **weekends**, for shopping and socialising.

Agent: That's fine. We have plenty of availability then. Do you have any special requirements?

Sarah: Yes, I have two young children, so I'll need a car with a **child seat**.

Agent: Not a problem. We can make sure that's noted on your account. And finally, do you have a promotional code?

Sarah: Yes, my friend is a member and she gave me a code. It's **EV2026**.

Agent: EV2026. Great, that will give you a £20 discount on your first month's membership. I'll just process your application now, and you should receive your membership pack in the post within a few days.

Sarah: That's wonderful. Thank you for your help.

SECTION 2

(Introductory music)

Presenter: Welcome to 'Green Wheels', the show that explores the world of sustainable transport. This week, we're talking to David, the founder of 'Retro-EV', a company that gives classic cars a new lease of life. David, welcome to the show.

David: Thanks for having me. It's great to be here.

Presenter: So, David, tell us about 'Retro-EV'. What do you do?

David: Well, in simple terms, we take classic and vintage cars and convert them to run on electricity. We remove the old gasoline engine and replace it with a state-of-the-art electric motor and battery pack. It's a way of preserving these beautiful old cars while making them fit for the 21st century.

Presenter: That's a fascinating idea. What's the main advantage of converting a car rather than buying a new electric one?

David: I think the biggest advantage is that it allows people to keep their existing cars, cars that they love and have an emotional connection to. Not everyone wants to drive a modern, mass-produced electric car. Our service allows them to have the best of both worlds: the classic style and character of their old car, with the clean, quiet, and efficient performance of an electric vehicle.

Presenter: What kind of cars are most suitable for conversion?

David: We can convert almost any car, but the process is most suitable for small, lightweight cars. They don't need a huge battery pack, which keeps the cost down and makes the conversion process simpler. We've worked on everything from classic Minis to VW campervans.

Presenter: And what about the performance? What kind of range can people expect from a converted car?

David: The typical range of a converted car is around 100-150 miles on a single charge. It's perfect for everyday driving, commuting, and weekend trips. We also offer a warranty on the electric motor and battery, so our customers have complete peace of mind.

Presenter: You've brought some examples of your work with you today. Tell us about them.

David: Yes, we have a few of our most popular conversions. The VW Beetle is a great example of a classic design that works really well as an EV. It's perfect for city driving. The Mini Cooper is another favourite. It's incredibly fun to drive and has surprisingly fast acceleration. For those who need a bit more space, we've converted a Land Rover Defender, which is a real workhorse with a very spacious interior. We've even done a Porsche 911, which is a testament to the fact that you don't have to sacrifice performance when you go electric. And for businesses, we've converted a Ford Transit Van, which is our most affordable conversion and a great way for companies to reduce their carbon footprint.

Presenter: It all sounds very impressive. If you're interested in converting your classic car to electric, you can find out more on the 'Retro-EV' website…

(Outro music)

SECTION 3

Professor: So, Chloe and Tom, how are you getting on with your presentation on the future of electric vehicles?

Chloe: We're making good progress, Professor. We've decided to focus on the challenges of wireless charging for EVs.

Tom: We think it's a really interesting area, but we're finding it hard to narrow down the topic.

Professor: I agree, it's a broad subject. What have you discovered so far?

Chloe: Well, we've learned that the main problem with current wireless charging technology is that it's inefficient and slow. It takes much longer to charge an EV wirelessly than with a traditional cable.

Tom: And the efficiency drops off significantly if the car isn't parked in exactly the right position over the charging pad.

Professor: Those are both valid points. Have you looked into the different types of wireless charging?

Chloe: Yes, we have. I'm particularly interested in dynamic wireless charging. The idea of charging your car while you're driving along the motorway is just amazing.

Tom: I'm a bit more sceptical. I'm concerned that dynamic wireless charging could be very expensive to implement on a large scale. You'd have to dig up all the roads to install the charging coils.

Professor: That's a fair point, Tom. The economic feasibility is a major hurdle. Perhaps you could focus your presentation on that. You could compare the costs and benefits of static versus dynamic wireless charging.

Chloe: That's a good idea. We could also look at some of the pilot projects that are already underway. I read that South Korea is a leader in dynamic charging research.

Tom: And we could discuss the potential benefits of widespread wireless charging. For example, if cars could charge on the go, they could have smaller, lighter batteries, which would make them more efficient and cheaper to produce.

Professor: Excellent. Now you're thinking like researchers. What about the environmental impact? Have you considered that?

Chloe: That's a good question. We could research the environmental impact of manufacturing the wireless charging pads. There might be some interesting findings there.

Tom: And we could also look at the electricity used for wireless charging. Is it coming from renewable sources?

Professor: These are all excellent avenues to explore. For the next stage of your project, I suggest you create a survey to gauge public opinion on wireless charging. It would be interesting to see if people are willing to pay a premium for the convenience.

Chloe: That's a great idea, Professor. We'll get started on that right away.

Tom: Thanks for your help. We feel much more confident about our presentation now.

SECTION 4

Lecturer: Good morning, everyone. Today, I want to talk about a technology that has the potential to revolutionise both the energy and transport sectors. It's called Vehicle-to-Grid, or V2G for short.

So, what is V2G? In simple terms, it's a technology that allows electric vehicles to communicate with the **power grid**. This means that EVs can not only draw electricity from the grid to charge their batteries, but they can also push electricity back into the grid when it's needed.

How does it work? Well, it requires a special type of charger, known as a **bidirectional** charger. This allows electricity to flow in both directions. EV owners can use a smart charging app to decide when they want to charge their car and when they're happy to sell energy back to the grid. For example, you could charge your car overnight when electricity is cheap and then sell some of that energy back to the grid during the day when demand is high and prices are higher.

This has huge benefits for the grid. It helps to balance **supply and demand**, which is a major challenge for grid operators. When there's a sudden surge in demand, for example on a hot day when everyone turns on their air conditioning, V2G can provide a buffer by drawing on the stored energy in thousands of EVs. This can also help to integrate more **renewable energy** into the grid. Solar and wind power are intermittent, meaning they don't generate electricity all the time. V2G can store excess renewable energy when it's sunny or windy and then release it back into the grid when it's needed.

This reduces the need to build new **power plants**, which are expensive and can have a significant environmental impact. For EV owners, the main benefit is financial. They can earn money by selling their excess energy, which can help to offset the **cost of ownership** of their vehicle. The whole process is managed automatically by a **smart system**, so it's completely hassle-free for the owner.

Of course, there are challenges. The main concern is the potential for increased **battery degradation**. Charging and discharging a battery frequently can reduce its lifespan. However, recent studies have shown that with smart management, the impact on battery health can be minimised. There's also a need for standardized communication protocols, so that all vehicles and chargers can talk to each other. And the high cost of bidirectional chargers is a major hurdle to widespread adoption.

In conclusion, while there are still some obstacles to overcome, V2G technology has the potential to be a **game-changer** for both the energy and transport sectors. It's a powerful example of how we can use technology to create a more sustainable and efficient energy system.

ANSWER KEY

READING

1. FALSE
2. FALSE
3. TRUE
4. NOT GIVEN
5. FALSE
6. TRUE
7. C
8. B
9. C
10. C
11. primary cells
12. practical
13. urban residents
14. v
15. vi

16. ii
17. iii
18. iv
19. i
20. B
21. B
22. C
23. B
24. energy density
25. cobalt
26. handling and stability
27. NO
28. NO
29. YES
30. NO
31. NO
32. YES
33. C
34. B
35. B
36. C
37. carbon footprint
38. water pollution
39. energy mix
40. battery recycling

LISTENING

1. Connolly
2. Park

3. 07700 900 821
4. SC58 2910 6B
5. Premium
6. (a) local bus
7. running costs
8. weekends
9. child seat
10. EV2026
11. B
12. C
13. A
14. B
15. B
16. G
17. D
18. E
19. B
20. C
21. C
22. B
23. B
24. C
25. B
26. B
27. C
28. A
29. A
30. C
31. power grid

32. bidirectional
33. supply and demand
34. renewable energy
35. power plants
36. cost of ownership
37. smart system
38. battery degradation
39. (high) cost
40. game-changer

GRAMMAR

1. The number of electric cars on the road **is** increasing every year.
2. **Despite** the high initial cost, many people are choosing to buy electric vehicles.
3. The government should provide more incentives **to encourage** the adoption of EVs.
4. Electric cars are much **quieter** than traditional gasoline-powered cars.
5. I have been **reading** a lot about the environmental benefits of electric vehicles recently.
6. is being made
7. did not use to be / used not to be
8. faces the challenge of
9. is expected to fall
10. unless you charge
11. was invented
12. about
13. A
14. had already been
15. buying
16. DOMINANCE

17. INCENTIVES
18. DEVELOPMENT
19. PRODUCTION
20. POPULARITY

TUTOR GUIDE

WRITING TASK 1: MODEL ANSWER

The provided bar chart illustrates the sales figures for gasoline and electric vehicles in Europe between 2015 and 2025, with the final year being a projection. Overall, the chart indicates a significant and opposing trend in the sales of the two types of vehicles, with gasoline car sales declining as electric car sales are expected to rise dramatically.

In 2015, gasoline vehicles dominated the market, with sales reaching 14.2 million units, while electric vehicle sales were negligible at only 0.5 million. This trend continued into 2018, although the gap began to narrow slightly, with gasoline car sales falling to 12.8 million and electric car sales increasing to 1.2 million.

A more pronounced shift is evident in the 2021 data. Sales of gasoline cars had dropped to 10.5 million, whereas sales of electric vehicles had more than tripled from the 2018 figure, reaching 3.8 million units.

The most striking feature of the graph is the projected data for 2025. It is anticipated that electric vehicle sales will surge to 9.5 million units, decisively overtaking gasoline vehicle sales, which are expected to fall to 6.1 million. This represents a complete reversal of the market dynamics seen a decade earlier.

In summary, the chart clearly shows a transition in the European car market, away from traditional gasoline-powered vehicles and towards a future dominated by electric cars.

WRITING TASK 2: MODEL ESSAY (BAND 9)

The global shift towards sustainable energy has placed electric vehicles (EVs) at the forefront of governmental policy-making. To accelerate this transition, many authorities are offering substantial financial incentives to prospective buyers. While this approach has its critics, I firmly believe that the advantages of subsidising electric car purchases far outweigh the disadvantages, primarily due to the long-term environmental and economic benefits they foster.

Opponents of these incentives often point to the significant immediate cost to the taxpayer. They argue that these subsidies are a regressive form of taxation, where public funds are used to help affluent individuals purchase expensive vehicles. Furthermore, there is the argument that the market should be allowed to operate freely, and that propping up a nascent technology with public money distorts competition and can lead to economic inefficiencies. While these are valid concerns, they tend to focus on the short-term financial implications and overlook the broader societal gains.

Conversely, the long-term advantages of promoting EV adoption are compelling. Firstly, the environmental imperative is undeniable. The transport sector is a major contributor to greenhouse gas emissions, and a rapid transition to electric vehicles is crucial for meeting climate change targets and improving urban air quality. Financial incentives act as a powerful catalyst, accelerating the adoption of cleaner technology at a rate that would be unachievable through market forces alone. This, in turn, stimulates innovation and economies of scale, driving down the cost of EVs for everyone in the long run.

Secondly, there are significant economic benefits to be gained from leading the charge in the electric vehicle revolution. By incentivising the domestic market, governments can foster a thriving green technology sector, creating jobs in manufacturing, research and development, and infrastructure. This not only boosts the national economy but also reduces reliance on imported fossil fuels, enhancing energy security. The initial investment in subsidies can, therefore, be seen as a strategic down payment on a more sustainable and prosperous economic future.

In conclusion, while the use of financial incentives to promote electric vehicle ownership is not without its drawbacks, the arguments against it are largely myopic. The pressing need to address climate change, coupled with the substantial long-term economic and environmental rewards, provides a powerful justification for these policies. The initial public expenditure is a small price to pay for a cleaner, healthier, and more prosperous future.

SPEAKING PART 2: SAMPLE RESPONSE

(One minute of preparation)

Okay, so I'd like to talk about my first time driving an all-electric car, which was a really memorable experience. This happened about a year ago when I was on a city break in Amsterdam with my partner. We decided to rent a car for a day to explore the countryside outside the city, and we came across a car-sharing service that offered only electric vehicles. The car we rented was a Tesla Model 3, which I was incredibly excited about as I'd read so much about them.

We picked up the car from a designated parking spot in the city centre. The whole process was done through an app on my phone, which was very futuristic. The car itself was sleek and modern, and the interior was dominated by this huge touchscreen display, which controlled everything. It felt more like a spaceship than a car.

We spent the day driving through the beautiful Dutch countryside, visiting picturesque villages and windmills. The most striking thing about driving the Tesla was the silence. There was no engine noise, just a faint hum as we glided along the road. The acceleration was another thing that blew me away. It was instantaneous and incredibly powerful. I remember my partner and I both laughing with surprise the first time I put my foot down.

I felt a real sense of excitement and optimism about the future of driving. The experience completely changed my perception of electric cars. I had always thought of them as being a bit slow and boring, but the Tesla was the complete opposite. It was fast, fun, and incredibly advanced. It made me realise that the transition to electric vehicles isn't about making a sacrifice; it's about embracing a better, more exciting technology. I came away from the experience convinced that my next car will definitely be an electric one.

KEY VOCABULARY LIST

1. **Prototype:** (noun) The first or preliminary version of a device or vehicle from which other forms are developed.
2. **Viable:** (adjective) Feasible; capable of working successfully.

3. **Heyday:** (noun) The period of a person's or thing's greatest success, popularity, or vigour.
4. **Pollutants:** (noun) Substances that pollute something, especially water or the atmosphere.
5. **Dominance:** (noun) Power and influence over others.
6. **Paradigm shift:** (noun phrase) A fundamental change in approach or underlying assumptions.
7. **Drivetrain:** (noun) The system in a motor vehicle which connects the transmission to the drive axles.
8. **Regenerative braking:** (noun phrase) A mechanism in an electric or hybrid vehicle that uses the energy from braking to recharge the battery.
9. **Energy density:** (noun phrase) The amount of energy stored in a given system or region of space per unit volume.
10. **Chassis:** (noun) The base frame of a motor vehicle or other wheeled conveyance.
11. **Conundrum:** (noun) A confusing and difficult problem or question.
12. **Nuanced:** (adjective) Characterized by subtle shades of meaning or expression.
13. **Carbon intensity:** (noun phrase) The amount of carbon dioxide emitted per unit of energy generated.
14. **Lax:** (adjective) Not sufficiently strict, severe, or careful.
15. **Carbon footprint:** (noun phrase) The amount of carbon dioxide and other carbon compounds emitted due to the consumption of fossil fuels by a particular person, group, etc.
16. **Formidable:** (adjective) Inspiring fear or respect through being impressively large, powerful, intense, or capable.
17. **Incentive:** (noun) A thing that motivates or encourages one to do something.
18. **Subsidy:** (noun) A sum of money granted by the state or a public body to help an industry or business keep the price of a commodity or service low.
19. **Adoption:** (noun) The action or process of choosing to take up, follow, or use something.
20. **Bidirectional:** (adjective) Functioning in two directions.