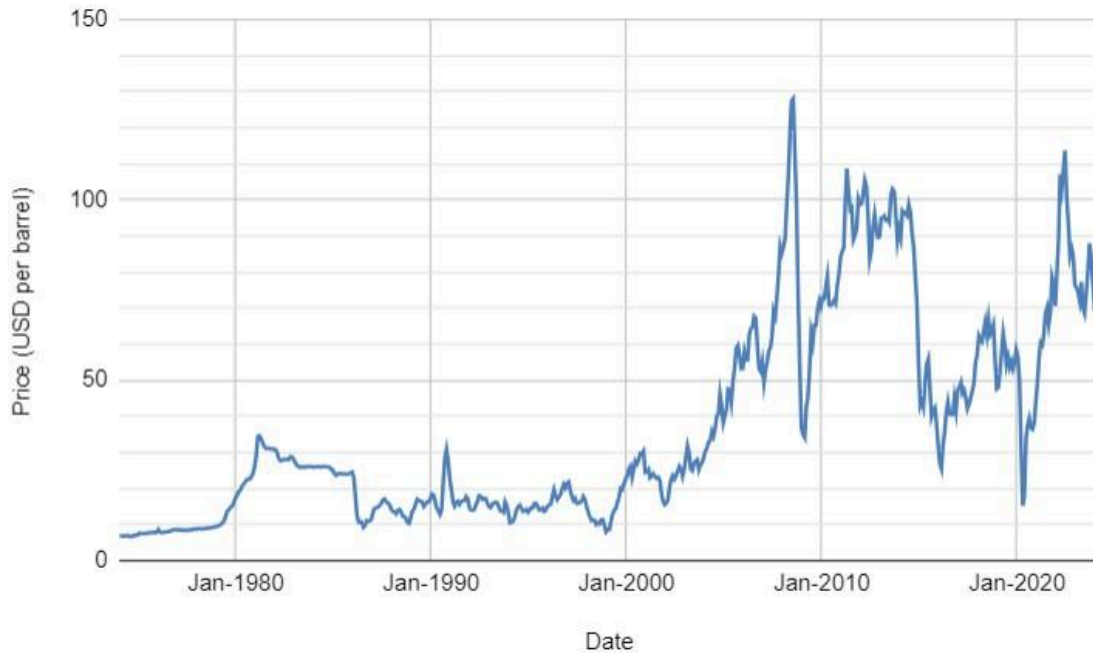


## Section B

### Fossil fuels and pollution

**Figure 1: Crude oil prices over time in US Dollars per barrel, from January 1974 to March 2024.**



Source: US Energy Information Administration,  
[https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=F000000\\_3&f=M](https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=F000000_3&f=M)  
Note the price is measured using the “first purchase price”.

### Extract A

#### Background on the coal industry

In the UK several coal plants have closed, including the Longannet plant. In 2012, coal made up 40% of the UK's power generation, but only 1.8% in 2020. Firms have been switching away from coal as an input and towards other fossil fuels or

renewables to source their energy. Consumers have put pressure on firms and governments to switch to renewable alternatives.

However, the UK Government approved the building of a new coal mine near Whitehaven, Cumbria. This mine will produce 2.8 million tonnes of coking coal a year, largely to be used in producing steel. Most steel production requires the use of coal. In spite of this, the UK's two large steel plants are looking to replace coal with low carbon technologies over time, such as with electric arc furnaces or hydrogen.

(Source: adapted from <https://www.bbc.co.uk/news/explainers-56023895> and miscellaneous other sources)

## **Extract B**

### **Market failure and fossil fuels**

At the COP26 Glasgow climate conference, negotiators from around the world worked to form an agreement to reduce emissions of greenhouse gases. The goal of the agreement is to try to prevent global temperatures from rising more than 1.5 degrees celsius above pre-industrial levels.

Greenhouse gases are emitted as a result of consumer activities including travel, use of utilities such as electricity and gas and firm activities, such as burning fossil fuels for energy for production.

Man-made climate change resulting from emissions of greenhouse gases, left unchecked, could lead to several consequences, according to the Intergovernmental Panel on Climate Change (IPCC). This ranges from extreme weather events such as droughts and flooding, to habitat destruction and to health difficulties, including asthma.

(Source: adapted from [https://www.ipcc.ch/report/ar6/wg1/downloads/outreach/IPCC\\_AR6\\_WGI\\_SummaryForAll.pdf?ref=refind](https://www.ipcc.ch/report/ar6/wg1/downloads/outreach/IPCC_AR6_WGI_SummaryForAll.pdf?ref=refind) and others)

## **Extract C**

### **Selected government intervention options to reduce emissions**

The UK Government is now running the UK Emissions Trading Scheme (ETS). Companies have to buy tradable permits to cover their carbon emissions. This scheme covers power generation, industry and aviation and the Government plans to reduce the number of permits over time.

However some firms receive free permits, such as ExxonMobil receiving £160 million in free permits. The UK Government argues that free permits can prevent carbon leakage, where polluting firms would simply move abroad to countries without strict pollution regulation and pollute more.

The Ultra Low Emission Zone (ULEZ) charges heavy polluting small vehicles for driving within parts of London. In 2023, the area covered by ULEZ was expanded to cover a further five million people. It is hoped that this will accelerate the replacement of old, more polluting cars with newer greener cars.

Plans for a similar Clean Air Zone in Greater Manchester had to be reviewed because of concerns about impacts on businesses, with plans to charge vehicles anywhere from £7.50 to £60 per day. The UK Government has provided funds to help drivers scrap their old vehicles and move to vehicles that will not face the Clean Air Zone fees. These funds may not be enough for everyone to make the switch.

(Sources: adapted from the BBC, IPCC, COP26, gov.uk, miscellaneous other sources.)

**Please turn over for questions**

6. (a) With reference to figure 1, explain one possible reason for the trend in the price of crude oil from 1974 to 2024. (5 marks)

(b) With reference to extract A, examine **two** determinants of the price elasticity of demand for coal. (8 marks)

(c) With reference to extract B, assess the possible market failures in the case of fossil fuels. (10 marks)

(d) Referring to extract C, assess the effectiveness of the UK Emissions Trading Scheme. (12 marks)

(e) Evaluate the effects of the low emissions zones mentioned in extract C, paragraphs 3 and 4, on the extent of market failure. (15 marks)

**End of Section B**