Question 1 The market for steel

Figure 1 Global composite steel price index

Note: Global composite steel price is a weighted average of the lowest transacted cost of all steel products converted into US dollars. 2004 = 100.

Source: www.bloomberg.com

Extract 1: Global steel market

The recent Eurozone sovereign debt crisis has created a lot of uncertainty in the steel market. This uncertain macroeconomic environment – with distressed financial markets and large government budget deficits – has led to countries implementing a number of austerity measures. In fact, certain parts of the world have suspended investment in large-scale infrastructure projects. As a result, steel demand has not rebounded as strongly as predicted.

Meanwhile, growth in Chinese steel production has changed the country from a net importer of steel to a net exporter of steel. Other emerging economies, such as South Korea and Taiwan, are also installing newer steel capacities. There is now significant over-capacity in the global steel sector.

Source: Global steel outlook 2011 and 2012; Ernst & Young's Global Mining & Metals Center

Extract 2: Environmental aspects of steel production

The primary process of steel production from iron ore involves three basic steps: First, the heat source used to melt iron ore is produced. Next the iron ore is melted in a furnace. Finally, the molten iron is processed to produce steel. This production of steel from ore is the most energy intensive and emits the most carbon dioxide. The main source of pollution comes from the use of coke - a solid carbon fuel – to melt

and reduce iron ore. Water pollution also comes from the water used to cool coke after it has finished baking.

Source: www.steel.org and www.oecd.org

Extract 3: The Kyoto Protocol

The Kyoto Protocol is an international agreement to reduce greenhouse gas (GHG) emissions. The major features of the Kyoto Protocol are summarised below:

1. Binding targets are set for 37 industrialized countries and the European community to reduce GHG emissions by an average of 5.2 per cent (based on 1990 levels) by the year 2012.
2. Recognising that developed countries are principally responsible for the current high levels of GHG emissions in the atmosphere, the Protocol places a heavier burden on developed countries.
3. Countries must meet their targets primarily through national measures. However, the Kyoto Protocol offers them an additional means of meeting their targets by way of Emissions Trading – known as “the carbon market". The countries are allowed to trade amongst themselves rights to emit six greenhouse gases. If a country reduces emissions below its agreed limit, it will be able to sell the additional reduction as a credit. So if a country is finding it difficult to cut emissions, it will be able to buy these credits from other countries.

Source: United Nations Framework Convention on Climate Change and J. Sloman, Economics

Extract 4: Is emissions trading effective?

Some of Europe's largest industrial companies gained billions of euros from the carbon emission rules they lobbied fiercely against, new analysis reveals today. Europe's top 10 steel and cement companies have amassed 240m carbon pollution permits from generous allocations. The free permits, granted to companies with a market value of €4 billion, can be sold or kept for future use. The European commission estimates that the entire energy-intensive sector will have accumulated allowances worth €7 billion to €12 billion by the end of 2012.

The European Union emissions trading scheme (ETS) puts a cap on the carbon pollution emitted by energy and industrial companies. Those reducing their emissions can sell their spare permits to those who do not. But a combination of initial over-allocation by national governments and the economic decline has left the steel, cement, chemical, ceramic and paper sectors with many more permits than they need. For instance, it was estimated that if the steel sector did not sell any of its surplus, it would not have a need to purchase emissions until 2023.

Analysis also revealed that 9 of these top 10 steel and cement companies bought between them 24.4m permits from the cheaper international market, mainly from companies in China and India. These can be used within the EU's trading scheme, enabling companies to retain the more valuable European ETS permits. Furthermore, despite the European companies claiming that tougher emissions rules

would drive business overseas, some were paying overseas steel and cement companies for their international carbon permits.

Source: The Guardian, 19 June 2011

Extract 5: US Protectionism of steel industry

Steel has traditionally been among the most protected sectors, especially because of the political and regional clout it commands in many countries and intense lobbying that often takes place by steel companies. For instance, the American Iron and Steel Institute (AISI) had, on several occasions, successfully lobbied for the introduction of protectionist measures. It is estimated that these measures cost the US steel consumers around US$16.8 billion between 2000 to 2007. Analysis further revealed that these measures were meant to save a dying industry in the US rather than countering unfair trade, which was the reason often advanced by the US when restricting steel imports.

Source: Indian Institute of Management

Questions

(a) (i) Summarise the trend in the global composite steel price between 2008 to 2011 as shown in Figure 1. [1]

Global steel prices were **falling** between 2008 to 2011

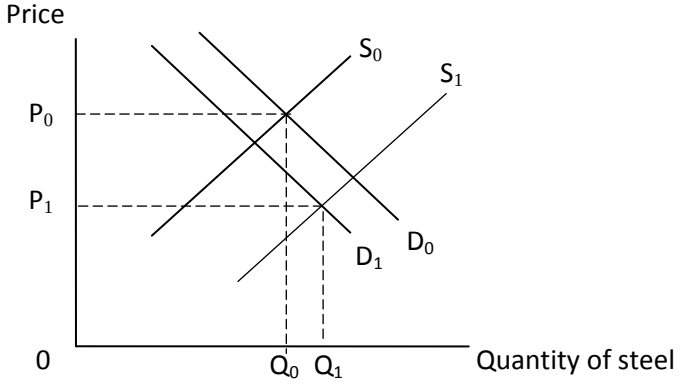
(ii) Extract 1 refers to recent changes in the global steel market.

Using a supply and demand diagram, explain how you would expect the recent Eurozone sovereign debt crisis and the growth in steel production in emerging economies to have impacted the world market for steel. [4]

Growth in steel production in emerging economies → Increase in the number of sellers → Increase in supply of steel (optional: and increase in price elasticity of supply due to increased spare capacity) [1]

Eurozone sovereign debt crisis → Suspended investment in large-scale infrastructure → which requires steel (derived demand) → Fall in demand for steel [1]

With use of diagram, explain SS curve shifts rightwards and DD curve shifts leftwards → resulting in fall in price but quantity indeterminate. [1]. Give a possible reason to weigh extent of shift and conclude on net effect on equilibrium quantity [1]



(b) **(i)** Explain what is meant by negative externality. [2]

Negative externality is the external costs [1] borne by individuals in society who are not directly involved [1] in the production or consumption of a good. They are also known as third party costs or external marginal costs.

(ii) With reference to the data, explain how the production of steel gives rise to negative externality. [4]

Production of steel → Emits carbon dioxide and causes water pollution [1]

Identify and explain third party effect – e.g. global warming which leads to extinction of species → loss for future generation / Fishermen downstream who loses livelihood [1]

Illustrate with diagram [1] and explain divergence between marginal private cost and marginal social cost by the amount of marginal external cost [1]

(c) Discuss the extent to which emissions trading can curb global greenhouse emissions. [8]

<u>Emissions trading can curb global greenhouse emissions</u>
Explain how emissions trading works:

- Sets a quantitative limit on level of greenhouse emissions for each country and then for each factory/industry
- Ideal position would be at the perceived social optimal level of emissions → i.e. where MSB = MSC → countries are collectively committed to reduce emission levels to the social optimal level
- Pollutive industries are given carbon pollution permits (total of which should be equivalent to the quantitative limit) and are permitted to emit up to the given amount.
- Countries / companies which are better equipped to reduce pollution will be willing to do so / find new methods of production to lower emissions. If they emit less than its allocated amount, they can sell the credits gained to other firms which will increase their profits.
- Those who are less efficient and thus able to buy these credits from those who are more efficient so that they can emit over their allocated limit. The market allows for those who are more efficient to reduce pollution. At the same time, external cost is internalised by the less efficient firms as they would need to pay a price (carbon permits) for additional pollution above their allocation. Adding to their cost → Lowering their profits → incentive to cut pollution to avoid having to incur increased cost.
- Therefore distribution and price of credits are determined by the market forces of demand and supply.
- Collectively, target optimal pollution level is achieved

<u>Extent depends on:</u>

- Correct estimation of “optimal” amount of pollution e.g. Binding target of reduction of 5.2% may be too low.
- Over-allocation of permits e.g. in EU where there is little need for companies to reduce their emissions in the first place. When the supply of permits is too generous, price of permits may be depressed and as such makes it cheap to purchase permits to continue emitting. There is thus little need for pollutive

industries to cut down pollution.

- Amount of emissions cut down by industrialised countries who are placed with heavier burdens vs additional emissions by developing countries e.g. Pollutive industries in EU buying permits from Chinese and Indian companies. This may lead to an overall increase in the level of emissions
- Unable to respond to changing economic conditions. E.g. Economic downturns leads to a fall in the level of production and hence less emissions → which means that it is difficult to measure the exact level of emissions that was cut as a result of emissions trading scheme → pollution would have been lowered due to the recession anyway.

Conclusion: Give a well-reasoned and sound conclusion based on above discussion.

Levels	Descriptors	Marks
L3	For a well-balanced answer with sufficient scope and depth in economic analysis on how emission trading works, together with a well-justified judgment on the extent of its success in curbing greenhouse gas emissions. There should also be good use of evidence from the case study. A sound conclusion is expected to score full marks	6 – 8
L2	For under-explained answer of how emission trading works with little discussion on the extent of its success in curbing greenhouse gas emissions. There is some attempt to relate to the context/case	3 – 5
L1	For a one-sided answer that lacks scope and depth in economic analysis. There is also little evidence of application to context/case.	1 – 2

(d) **(i)** Comment on the case for the use of protectionist measures by the US government to protect its steel industry. [3]

Explain **one** reason for US protectionist measures [2]
Reasons could include (Evidence from case):

- Anti-dumping
- Under-valuation of competitor's currency
- Protecting of jobs
- Dying industry

Evaluation (from case study) [1]:

- At the expense of US consumers

(ii) In the light of the issues raised in the extracts, assess the extent to which the removal of such protectionist measures will be beneficial to an economy such as China. [8]

Benefits of removing protectionist measures to economy like China:

- Please note that answer need not be confined to removal of protectionist measures in the steel industry.
- Anchor on theory of comparative advantage, BOP, AD/AS and SOL
- China or other countries (Net exporters – Extract 1) gaining in terms of increased export revenue (explain fall in relative price of exports) → improvement in balance of trade (using PED) – trade and specialisation according to the theory of comparative advantage
- Economies of scale → Lower unit cost of production and therefore prices for consumers
- Specialisation can lead to higher quality
- Increase AD and therefore economic growth (diagram expected)
- Job creation and increased employment opportunities for the country especially in the more labour intensive industries

Extent depends on:

- Type of industries – i.e. not all in the country will gain equally – depends on the relative CA – dynamic concept (Extract 5 – How US lost its CA in steel to the emerging economies)
- Dd-pull inflation
- Pollutive industries may move to developing countries →Lowering SOL. These countries tend to have lower environmental protection standards (Extract 3)

Give a sound conclusion.

Levels	Descriptors	Marks
L3	For a well-balanced answer with sufficient scope and depth in economic analysis and evaluation on the benefits of removing protectionist measures applied to the China context. There should also be good use of evidence from the case study. A sound conclusion is expected to score full marks	6 – 8
L2	For under-explained analysis and evaluation of the benefits of removing protectionist measures applied to the China context. There is some attempt to relate to the context/case	3 – 5
L1	For a one-sided answer that lacks scope and depth in economic analysis. There is also little evidence of application to context/case.	1 – 2

[Total: 30 marks]