**Section A**

Answer **all** questions in this section.

**Question 1**

**The Market for Steel**

**Table 1: Crude steel production (million tonnes)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Country \ Year** | **2010** | **2011** | **2012** | **2013** | **2014** |
| **China** | 638.7 | 702.0 | 731.0 | 822.0 | 822.7 |
| **United Kingdom** | 9.7 | 9.5 | 9.6 | 11.9 | 12.1 |
| **WORLD** | 1,433.4 | 1,538.0 | 1,560.1 | 1,650.3 | 1,670.1 |

Source: World Steel Association

**Table 2: Crude steel consumption (million tonnes)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Country \ Year** | **2010** | **2011** | **2012** | **2013** | **2014** |
| **China** | 587.6 | 641.2 | 660.1 | 735.1 | 710.8 |
| **United Kingdom** | 8.8 | 9.0 | 8.4 | 8.5 | 9.6 |
| **WORLD** | 1,308.2 | 1,411.8 | 1,439.3 | 1,528.4 | 1,537.3 |

Source: World Steel Association

|  |
| --- |
| **Figure 1: Global steel prices (US$/tonne)** |
|  |

|  |  |
| --- | --- |
|  |  |

**Extract 1: The changing niobium landscape**

Applications of niobium have increased steadily over the years. About 90 per cent of niobium is used in the steel industry, primarily in oil and gas pipelines, automobiles, bridges, high-rise buildings and welded pipes. Resistant to corrosion, niobium strengthens and lightens steel.

Niobium is hard to find and currently mined in only three places on Earth. 84 per cent of the global supply comes from one company - Companhia Brasileira de Metalurgia & Mineracao (CBMM) in Brazil. London-based Anglo American is the second largest niobium producer in the world and also mines in Brazil. The third niobium producer is Niobec, which mines in Canada.

The demand for niobium remains high due to its use in the production of quality steel. Yet, prices fell last year as slumping oil and gas markets led to fewer metal pipe purchases, according to niobium producer, Anglo American. On 28 April 2016, Anglo American announced that it was selling its niobium business in Brazil for US$1.5 billion to China Molybdenum, in a bid to focus on other markets and cut back debt against a backdrop of volatile commodity prices.

Adapted from: *The Globe and Mail*, 18 May 2016

 *Argonaut Research*, 29 April 2016

*Materials Research*, vol. 18 no. 1, Jan/Feb 2015

*Reuters*, 2 September 2011

**Extract 2: Chinese steel firms expanding in Africa**

China produces too much steel. With 800 million tons of steel a year, the country makes up half of world production in 2014 - adding to the current global glut. Chinese steel is at its lowest price in over a decade and most firms producing the commodity in the country are loss-making as construction slows in the world’s second largest economy. Market analysts are not surprised to see China’s steel sector shrinking because “a lot of that growth was artificially supported by government subsidies”.

But with overcapacity continuing, Chinese steelmakers are exporting a large amount of the metal to other markets at low prices, hurting the sector and prompting trade participants to cry foul on what is perceived as dumping. Yet, instead of shrinking its steel sector, Chinese firms are expanding steel production in Africa. According to a Shanghai-based trade publication, Chinese firms are taking a longer view of Africa’s potential given that African steel demand is expected to hit 300m tonnes per year by 2050. African sources of iron ore and basic steel could also give China a more stable supply to feed its industry.

Adapted from: *The Economist*, 13 July 2015

& *CNBC.com*, 18 November 2015

**Extract 3: Two towns in Quebec, Canada, protest against niobium mining proposals**

Protesters voiced their disapproval of a proposed niobium mine in Kanesatake outside an information session on the project. The Mohawks, whose traditional territory will be affected by the mine, invited the company, Eco-Niobium, to tell community members about the proposed mine, including its promise to create much-needed jobs. However, protesters’ major concerns were the irreversible impacts on local farmlands because niobium mining is associated with radioactivity. Water will also be adversely impacted by contamination and lowering of the water table.

Two months ago, nearby town Oka had rejected a similar proposal from Eco-Niobium, which the company said would create 250 jobs and pump about $5 million per year in terms of royalties and taxes. Residents opposed to the reopening of this mine, claiming it could contaminate the water supply and soil in the small agricultural town of nearly 4,000 people. Oka’s mine was one of the world’s largest producers of niobium for decades until it closed in 1977 after residents complained that well water was being siphoned off from farmers.

Adapted from: *CBC news*, 3 June & 5 April 2016

**Extract 4: UK steel crisis**

More than one in six workers in Britain’s steel industry is facing the axe after Tata Steel, one of Europe’s leading steel manufacturers, confirmed it was cutting almost 1,200 jobs as part of a radical shakeup. The announcement increases pressure on the government over its handling of the crisis.

Britain’s steel industry has been battered by falling steel prices, high energy costs, cheap imports and the strength of the pound. Tata said imports of steel plate into Europe had doubled in the past two years and imports from China had quadrupled. The steel crisis threatens severe knock-on effects, with jobs threatened throughout the supply chain for the industry. In addition, many towns with steel plants rely on the sector’s skilled workers to spend money in local shops and other businesses.

 Adapted from: *The Guardian,* 20 October 2015

**Questions**

**(a)** Using Tables 1 and 2, compare the relative changes in China’s crude steel production and consumption from 2011-2014. [2]

**(b)** Using Extracts 1 and 2, explain one demand factor and one supply factor that could support the trend in global steel prices from 2011 to 2014. [4]

**(c) i)** Explain how the “current global glut” would affect the price elasticity of supply for metal. [2]

**II)**  Explain why the excessive production of steel lead to the problems of steel crisis in UK. (4)

**(d)** Explain the opportunity cost of Anglo American’s decision to sell its niobium mining business. [3]

**(e)** With the use of relevant economic theory, explain why there have been protests against niobium mining proposals in Kanesatake and Oka. [5]

**(f)** To what extent should the Quebec government accede to the protests by Kanesatake and Oka residents? [6]

[Total: 20]