INNOVA JUNIOR COLLEGE
JC 2 PRELIMINARY EXAMINATION
in preparation for General Certificate of Education Advanced Level
Higher 2

ECONOMICS **9757/01**

Paper 1 **25 August 2017**

2 hours 15 minutes

Additional Materials: Writing Paper and Cover Page

READ THESE INSTRUCTIONS FIRST

Write your name and class on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid/tape.

Answer **all** questions.

Please begin each question on a **fresh sheet of paper**.

At the end of the examination, **submit each case study question separately**.

Attach a **cover page** to **each case study question** and write the **question number** on the cover page.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

You are advised to spend several minutes reading through the data before you begin writing your answers.

You are reminded of the need for good English and clear presentation in your answers.

This document consists of **8** printed pages and **0** blank page.

Answer **all** questions

Question 1

United States' Pharmaceutical Industry

Extract 1: The Pharmaceutical and Biotech Industries in the United States

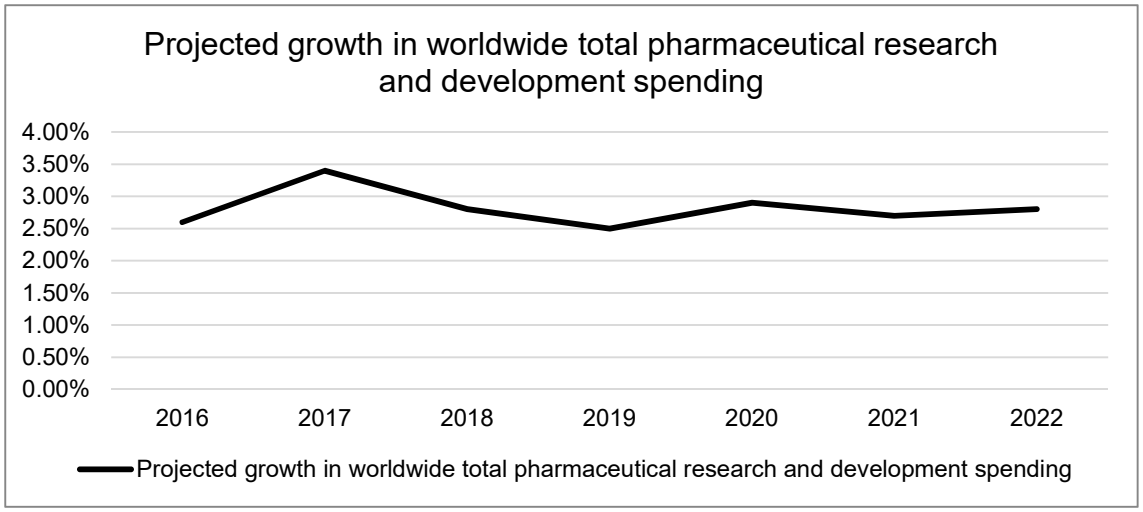
The United States is the world leader in biopharmaceutical research and development (R&D). In particular, San Francisco Bay Area and Northern California have the largest concentration of biotech companies in the nation. It is home to nearly 1,377 life science and biotech companies that employ more than 140,000 people. Bioscience companies based in the Bay Area reported total worldwide revenues of $4.1 billion and exports worth $2.7 billion.

The largest aggregation of research universities and federal research institutions in the U.S. is also in the Bay Area. "We are located in Emeryville, Calif. to leverage the rich intellectual talent in the San Francisco Bay Area, collaborating with academic institutions and biotechnology companies to improve patient outcomes." said Mariellen Gallagher, a spokesperson for Novartis Institutes for BioMedical Research, the drug discovery unit for Novartis.

According to the Pharmaceutical Research and Manufacturers Association (PhRMA), U.S. firms conduct the majority of the world's research and development in pharmaceuticals and hold the intellectual property rights on most new medicines. Its strengths include an intellectual property system that rewards innovation through patent and data protection, a science-based regulatory system that is considered the most rigorous in the world, the world's largest scientific research base fostered by academic institutions and decades of government research funding, and robust capital markets.

Source: *SelectUSA*, accessed 10 August 2017

Figure 1: Projected total worldwide Pharmaceutical Research and Development (R&D) Spending from 2016 to 2022



Source: *EvaluatePharma*, accessed 10 August 2017

Extract 2: Patent in the U.S. Pharmaceutical Industry

The policy debates in the pharmaceutical industry revolve around promoting innovation and increasing competition in markets. The level of R&D in the industry relies heavily on the patent

system. The firm which developed the drug are rewarded from monopoly profits of the drug sales for the duration of the patent. Discovery of new drugs confer benefits to the society with more effective and improved health outcomes. On the other hand, once the patent expires, the entry of generic drugs manufacturers erodes patent-protected monopoly profits and reduces the associated society's deadweight losses. Although the patent on an innovative drug expires on a specific date, the drug's trademark may live on and possibly delaying or impeding subsequent competition.

Because regulation and patents has had important effects on the level of innovation in the pharmaceutical industry, a great deal of research has been done on this trade-off between innovation and competition.

Source: *Harvard University and National Bureau of Economic Research,* accessed 10 August 2017

Extract 3: Competition from generic drug producers

Generic medicines are proven to be chemically and therapeutically equivalent to originator brands, but are significantly cheaper. Generic drug manufacturers do not incur R&D costs and are able to offer a significant price advantage to the originator brand. The use of generic medicines has been seen in many countries as a partial remedy to address the problem of ever increasing expenditure on pharmaceuticals.
Falling drug prices can have a tangible impact on one's treatments for illnesses that take a particularly large toll on the nation's health. For example, the cost of high cholesterol medication fell by 10 percent for a 30-day supply, which quickly reduces the healthcare spending for patients who have chronic conditions like excess cholesterol and diabetes.

Source: *LSE Health*, The London School of Economics and Political Science, accessed 10 August 2017

Extract 4: India's Generic Drug Manufacturers: Poised for Continued Growth

Over the last 10 years, the export prowess of India's generic pharmaceutical industry has reshaped the global pharmaceutical business. Since the 1970s, with the abolition of patent protection rights, India's pharmaceutical industry has been dominated by home-grown generic drug makers. Indian generic drug makers also managed to gain a foothold in regulated markets such as the US and Europe. In fact, Indian companies are second only to US-based companies in approval of generic drugs, maintaining a total share of nearly 30%-40% on a consistent basis.

Countries in the European and African regions are also the prime consumers for Indian generics medicines. Increasing influence of foreign multinationals has become a cause of concern for authorities and market players. At the same time, patent expiries may turn out to be a growth booster.

However, quality issues are an ongoing challenge for the Indian pharmaceutical industry. US Food and Drug Administration (FDA) has not only increased the frequency of its inspections but also intensified scrutiny on drug manufacturing facilities in India, resulting in delayed product approvals or restrictions in export to the US market.

Source: *Nasdaq*, 29 February 2016

Extract 5: Is The Golden Era Of Pharmaceutical Profits Over?

For decades, the pharmaceutical industry has been highly profitable. The recipe for such profits has been pretty simple for most of the last half-century – discover a chemical or molecule that treats a common problem, like hypertension or diabetes and make billions of dollars while that product is still under patent protection. But of course, profits were never so simple. It takes billions of dollars to develop one new drug suitable for testing in humans and even then, the drug might turn out to be too toxic or to have too little benefit to make it on to the market. It might take a handful of such drugs before a company finally finds one that works to recover the rising cost of new drug development. With the number of common illnesses in need of interventions dwindling and competition from generic manufacturers, it is getting increasingly difficult to earn enough to make up for the competition and cost of innovation.

Source: *Forbes*, 29 July 2016

Questions

(a) In extract 1, it is mentioned that San Francisco Bay Area and Northern California have the largest concentration of biotech companies in the nation.

Explain how this might bring about cost savings to the biotech companies. [4]

(b) **(i)** Describe the trend in projected total worldwide pharmaceutical R&D spending from 2016 to 2022. [2]

(ii) Explain one reason for the trend observed above. [2]

(c) Explain how the entry of generic drugs manufacturers after expiration of patent "reduces society's deadweight losses" from monopoly pricing under patent. [4]

(d) Discuss the macroeconomic impact of the rise of India's generic pharmaceutical industry on US and India. [8]

(e) The case study highlights various benefits and costs of the pharmaceutical industry to society.

Assess whether regulation through patent is the most appropriate form of government intervention in the pharmaceutical industry to maximise benefits to society. [10]

[Total 30 marks]

Question 2

Slowing Economy and Rising Income Inequality

Table 1: Macroeconomic Indicators of the United States 2008 - 2015

Year	2008	2009	2010	2011	2012	2013	2014	2015
Real GDP growth rate (%)	-0.29	-2.78	2.53	1.60	2.22	1.68	2.37	2.60
Inflation, consumer prices (annual %)	3.84	-0.36	1.64	3.16	2.07	1.46	1.62	0.12
Net trade in goods and services (current US$ in billions)	-708.73	-383.78	-494.66	-548.63	-536.77	-461.88	-490.18	-500.34
Unemployment (% of total labor force)	5.78	9.25	9.63	8.95	8.07	7.38	6.17	5.28
US Central government debt, total (% of GDP)	64.03	76.32	85.60	90.18	94.40	96.61	97.11	97.84

Source: World Bank

Extract 6: Slow growth, rising income gap

The US economy barely grew in 2015 as a strong dollar sapped exports, manufacturing declined and consumer spending cooled. Consumer spending, which makes up about two-thirds of gross domestic product, rose 2.2 per cent, marking a slowdown from the 3 per cent in the third quarter. Meanwhile, investment fell 2.5 per cent as energy companies pared back spending in light of the fall in the price of crude oil. The economy has added 13.6m jobs since bottoming in 2010. However, the central bank noted that economic growth is slow even as the labour market conditions improved.

During the last few decades, income inequality has increased significantly in the US. In 2013, the national Gini Index stood at 0.476, up from 0.463 in 2007 and 0.397 in 1967. With an expanding share of the gains from economic growth flowing to a tiny fraction of high-income US households, average family income for the bottom 90 percent has been flat since 1980. The slow wage growth of the America's middle class partly owes to a slowdown in productivity growth.

Source: *Financial Times*, 29 January 2015

Extract 7: It's time to focus on the redistribution of income to poorer workers

Economic Professor Kaushik Basu at Cornell University says that one of the biggest challenges economists and politicians have to face is that the increase of technology has spurred the globalisation of labour in a way never before encountered.

According to Basu, the sharp rise in technology that links workers in different places now allows wealthy nations to access cheap labour that was earlier tucked away in faraway places. The ability to outsource workers has improved world GDP and the standard of living for people in developing countries and thus should be celebrated. But the problem is the “bottom end of labour” in rich countries like the US is now in direct competition with “workers in poorer countries who command a much lower wage”.

Basu says that while poverty is improving in developing countries, this competition for labour “is causing inequality to get exacerbated” in wealthy countries. This highlights that the winners from globalised labour are not just the worker in the poor nations, but the firms in the wealthy ones. He also argued that the push towards greater protectionism is precisely the wrong path to take. Instead, governments need to focus more on distributing profits to workers.

Outsourcing has actually been very good for economic growth in wealthy nations such as the open economy in the US of the 1980s and 1990s. He argues that, were the US under a protectionist trade policy to block the outsourcing of labour it would look very good “at first sight” because it would seem like “you’re protecting jobs among your own workers in your own country”. But he argues what would happen is that other nations would continue to use the cheap labour and would outcompete the protectionist nation.

Basu argues that “GDP growth is not an end in itself”. Often those who argue in favour of reducing income inequality do so by arguing that it “is actually good for GDP growth”. He argues however that while this is often the case, reducing income inequality may slice off a little of the GDP growth. He argues that the way to respond is for both an open economy (which is good for GDP growth), but also that governments must “think of some form of redistribution so that workers get their income shored up or take the form of better services likes health and education. To this end, while not discounting the idea of a minimum wage, he argues “the time has come to allow workers to get a share of profits”.

Source: Adapted from *The Guardian*, 29 Nov 2016

Extract 8: Growth vs Income Inequality

Economists say that some inequality is needed to propel growth. Without the carrot of large financial rewards, risky entrepreneurship and innovation would grind to a halt. However, the recent rise in inequality has prompted a new look at its economic costs. Inequality could impair growth if those with low incomes suffer poor health and low productivity as a result, or if, as evidence suggests, the poor struggle to finance investments in education. Inequality could also threaten public confidence in growth-boosting policies like free trade, fuelling calls for greater protectionism. Economic eminences such as Ben Bernanke and Larry Summers argue that inequality may also contribute to the world's "savings glut", since the rich are less likely to spend an additional dollar than the poor.

Crafting a response to rising income inequality is tricky, however. Some of the negative impact of income inequality on growth can be blamed on poor government policies in highly unequal

countries. Over the past generation or two, inequality has risen most in places where progressive policies, such as high top tax-rates, have been weakened. A little more redistribution now might improve economic growth.

Source: Various

Extract 9: Ensuring that economic growth is more inclusive

One key area of focus for Singapore policymakers is how to make sure no one is left behind. Several key measures have been put in place in recent years, chief among them SkillsFuture. Its initiatives, announced in Budget 2015, aim to provide a range of opportunities for workers to continue their education and training so that they can improve their skills and incomes throughout their careers. Another example is the $8 billion Pioneer Generation Package to help citizens aged 65 and above in 2014 meet their healthcare costs for life, with subsidies on medical services.

DBS economist Irvin Seah points out that it is the Government's prudence in adding to and managing its reserves over the decades that has allowed it to deliver such packages in the first place.

But as the Singapore economy moves forward, the Government has to account for increased spending in healthcare and eldercare and a changing revenue base, said Mizuho Bank economist Vishnu Varathan. The challenge is how to do so without overtaxing the working class over the next 10 to 15 years.

One way would be to raise the current 7% GST, noting that many countries have 10% or more. But several ministers have said that the Government has no plans to raise the GST for now, and would not do so without justification. Retired four-term MP Inderjit Singh hoped higher taxes could be avoided, as the cost of living is already a big issue in Singapore.

Source: *Straits Times*, 27 Sep 2017

Questions

(a) **(i)** Describe the overall economic performance of the US between 2008 and 2015? [2]

(ii) Explain how a strong US dollar would affect the economic performance of US in 2015 as shown in Table 1. [2]

(b) Using demand and supply analysis, explain how the competition for labour is "causing inequality to get exacerbated" in wealthy countries. [4]

(c) With the use of a diagram, explain an argument for and against the implementation of a minimum wage as mentioned in Extract 7. [4]

(d) Discuss the impact of globalisation of labour on various groups of economic agents in developing countries. [8]

(e) Extract 9 mentioned that Singapore has shifted towards inclusive growth.

Discuss whether US should follow Singapore's approach towards growth. [10]

[Total: 30]

- End of Paper -