Answer **all** questions.

**Question 1: Healthcare systems around the world**

**Extract 1: Challenges of Singapore’s healthcare system**

Singapore's life expectancy has already grown from 75 to 83 within a generation. While this is great news for citizens, an increasingly elderly population – and the related problem of rising rates of chronic conditions – means more strain on medical resources, and this problem is compounded as more of us enjoy longer lives. As such, healthcare expenditure is expected to triple by 2030, rising to $44 billion from $17 billion in 2013. In light of this, many private healthcare providers are thinking of raising the price of healthcare as a form of revenue-raising strategy.

Singapore has sufficient capacity to meet demand for aged care. More public hospitals are expected to start by 2022. But it will need to continue to grow services to cater to the greying nation, meaning Singapore needs more than just manpower; it also needs to fundamentally change how its healthcare is delivered. Recruiting and training more medical professionals definitely needs to be part of the solution. But this alone will not cut it as a long-term fix because the nub of the problem is that people are living longer.

Sources: *The Straits Times*, 15 August 2018,

and, *Business Times*, 27 September 2018

**Table 1: Selected statistics of Singapore**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** |
| Fiscal position  (million dollars SGD) | 4,002.7 | 5,821.1 | 4,998.2 | 571.5 | ‐4,049.7 | 6,124.8 |
| Price Indices of Healthcare | 89.8 | 93.7 | 97.3 | 100.0 | 99.9 | 101.0 |
| Price Indices of All items | 92.5 | 96.7 | 99.0 | 100.0 | 99.5 | 98.9 |

Source: *Yearbook of Statistics Singapore*, 2018

**Table 2: Number of nursing homes in Singapore**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** |
| Total number of public nursing homes1 | 1 | 1 | 5 | 6 | 11 | 13 |
| Total number of not-for-profit nursing homes2 | 31 | 31 | 28 | 27 | 26 | 26 |
| Total number of private  nursing homes3 | 32 | 32 | 33 | 32 | 34 | 30 |

1Nursing homes owned or controlled by a government unit or another public corporation.  
2Nursing homes not permitted to be a source of income, or profit or other financial gains for their owners.  
3Nursing homes capable of generating a profit or other financial gains for their owners.

Source: *Yearbook of Statistics Singapore*, 2018

**Extract 2: Artificial Intelligence (AI) to the rescue in the Japanese healthcare industry**

Japan has been experiencing a persistent shortage of healthcare professionals. To alleviate the shortage, the government is teaming up with businesses and academia to set up hospitals enhanced by AI and allowing short-handed doctors to spend more time on patient care while curbing medical spending. AI helps with tasks from updating patients’ charts to analysing tests and parsing images to help with diagnoses, which in turn frees up medical professionals’ time to focus on more important areas. This means that AI can ease some burden for doctors and nurses and help address the labour shortfall.

The Japanese government is expected to invest more than 100 million yen in the effort over half a decade, with a target of establishing 10 model hospitals by 2022. Such government investment in AI aims to address structural challenges to healthcare, including the chronic lack of doctors and nurses in some areas and rising medical expenses. The initiative will also enhance the competitiveness of AI-enabled medical devices alongside the development of AI technology. Currently, Japan’s domestic market for AI-enabled medical devices is estimated at about 2.8 trillion yen. But imports surpass exports by 800 billion yen as doctors rely on foreign-made treatment equipment. Overall, Japan’s market related to AI-enhanced treatment is set to reach 15 billion yen by 2025, about 4 times as compared to 2016.

Source: *Nikkei Asian Review*, 9 Aug 2018

**Extract 3: The pitfalls of AI**

AI has been touted as a possible solution to counter the shortage of medical professionals in the healthcare industry. However, AI is still in its infancy in terms of its use in healthcare. There have also been fears that AI may pose a threat to jobs. However, some proponents argued that this would not be the case in healthcare - at least not in our lifetime. In both diagnosis and treatment, understanding context is vital, so human judgement will still have an integral role to play. This means that even as some jobs are destroyed by the rise of AI, new ones will be created. AI in healthcare can also boost economic growth rates and increase productivity. For instance patients can be diagnosed more quickly and accurately by apps designed to identify illnesses. Nonetheless, the biggest obstacle to implementing AI in healthcare is the lack of trust – more than one-third surveyed say patients will not trust AI to play an active role in their healthcare, and 30 percent assumed that clinicians will not trust it either.

Sources: *Business Times*, 27 September 2018,

and www.channelnewsasia.com, 8 May 2018

**Extract 4: The 3 ‘M’ healthcare framework in Singapore – is there a need to review?**

Singapore’s healthcare system has been well-regarded as an example of how government expenditure on healthcare per capita has been kept low even as continual improvements are made. This is largely attributed to the 3 ‘M’ framework – MediSave, MediShield Life and MediFund.

The MediSave scheme is a compulsory national medical savings account system that allows Singaporeans to set aside part of their monthly contribution to the Central Provident Fund (CPF) for personal or immediate family’s medical and certain outpatient expenses. The compulsory contributions to one’s MediSave Account are dependent on a few factors, such as age and income. The MediSave scheme is an unique aspect of the Singapore’s healthcare system, because it emphasises on a shared responsibility between the government and people. It is anchored by a co-payment system where individuals can use their MediSave account to offset the costs of various treatments, with a portion being partially subsidised by the government and the rest in cash by the patient.

Next, the MediShield Life, a medical insurance scheme, also administered by CPF Board, offers Singaporeans better protection against high medical bills. MediShield Life helps to offset a portion of the large hospital bills and selected costly outpatient treatments, such as dialysis. If the expenses were too large, the patient would have to draw from his or her MediSave account or cash to pay the remaining balance.

Lastly, the MediFund is a safety net for patients who face financial difficulties with their remaining bills after receiving government subsidies and drawing on other means of payment including MediShield Life, MediSave and cash. An independent MediFund Committee will decide on the appropriate quantum of assistance (in the form of, for example, subsidies) to provide.

However, in recent weeks, the affordability of healthcare services and coverage of medical insurance had come under spotlight, following a case where MediShield Life covered only S$4.50 of a patient’s bill that was over S$4,000. There were also concerns that MediShield Life did not cover maternity and fertility treatments as well as hospice care.

So, what can the government do to make the policies more affordable? Firstly, it can consider revising its MediSave withdrawal limits, and the qualifying conditions must be done in a calibrated manner. This is to ensure it meets the needs of those who need it most. Next, it can also consider offering tax deductions or reliefs for premiums on medical-related insurance policies, which would alleviate the burden of unforeseen or ongoing medical costs.

Singapore’s healthcare system is pragmatic and sustainable. The reality is that with an ageing population, the healthcare burden on the government and Singaporeans will inevitably rise. Empowering self-reliance with targeted support will go some way in helping people better bear the future costs of healthcare. Ultimately, optimal healthcare management must be a shared responsibility between the government and people, and having the right policies that nimbly address the different motivations and needs of various income groups is vital.

Sources: *Today*, 11 February 2019,

and Ministry of Health, 2019

**Questions**

**(a)** Identify **two** differences between the change in the price of healthcare and that of all items in Singapore during the period 2011–2016. [2]

**(b)** Summarise the data shown in Table 2 on the different types of nursing homes in Singapore during the period 2012–2016. [2]

**(c)** Explain why “healthcare expenditure is expected to triple by 2030” (Extract 1) and comment on the effects. [8]

**(d)**With the aid of a demand and supply diagram, explain a possible reason why Japan is experiencing a “persistent shortage” (Extract 2) in the labour market for healthcare. [4]

**(e)** With reference to Extract 2, explain the impact of an increase in competitiveness of Japan-made AI-enabled medical devices on **two** components of Japan’s Aggregate Demand. [4]

**(f)**With reference to data, assess the factors that a government would have considered in deciding whether to invest in AI in the healthcare sector. [7]

**(g)**

**(i)** Explain how information failure has caused an inefficient allocation of resources in the healthcare market. [6]

**(ii)** Extract 4 mentions that the Singapore’s healthcare system emphasizes on a shared responsibility between the government and people.

Using evidence from the case study and/or your own knowledge, discuss the extent to which shared responsibility is the best approach to address inefficiency and inequity in Singapore’s healthcare market. [12]

[Total: 45]