CV0001 April / May 2021 Daniel Rahmatcipta

Section A

1 A/ a. Plot ratio :

- Ratio of usable floor for all levels (GFA) to the site's land area
- Application : controls density & activity rate of different zones

b. Building coverage ratio :

- Percentage of land occupied by the building's structure
- Application : allows certain urban design to be achieved through some constraints on architects (similar like height control on skyline)

B/ a. Few charging stations island-wide

b. Slow charging speed compared to petrol refuelling time

c. Higher perceived EV prices regardless of the incentives

d. Excessive range anxiety

C/ a. Habitable underground structures

b. Floating platform

c. Reclaimed land

D/ a. Traffic ban / curfew

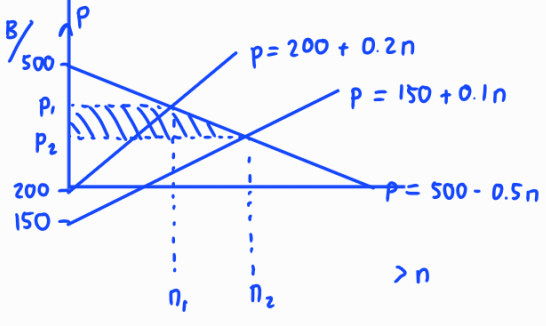
b. Increased parking fee during peak hours

c. Odd-even plate entry restriction

2 A/ a. $p = 200 + 0.2(1000 - 2p) \Leftrightarrow 1.4p = 400 \Leftrightarrow p = 285.71 \approx 286$ cents //

b. $n = 1000 - 2p \Leftrightarrow p = 500 - 0.5n$

B/



a. $P_1 = 286 \quad n_1 = \frac{286 - 200}{0.2} = 430$

b. $150 + 0.1n_2 = 500 - 0.5n_2 \Leftrightarrow n_2 = 583.\overline{33} \approx 583$

$P_2 = 150 + 0.1(583) \approx 208$

$\Delta C.S.$ = shaded area in the graph in the margin

$= \frac{1}{2}(n_1 + n_2)(P_1 - P_2) = 39507$ //

Section B

[1] A/ a. High redevelopment costs (pollutants cleaning prior to construction)

b. Polluted nearby water bodies

c. Infertile soil

d. Air pollution (e.g., at landfills)

B/ a. Reduces flooding

b. Harness the potential of stormwater

c. Cuts potable water demand

d. Improves water quality

C/ a. Marrina Barrage, Singapore

b. South-to-North Water Diversion Project, China

c. SMART Tunnel, Kuala Lumpur

D/ a. London's 2012 Olympic complex

b. Seoul's Cheonggye stream

c. Jurong Lake District

Section C

1	D
2	B
3	D
4	D
5	B
6	D

Section D

1	B
2	A
3	D
4	C
5	B
6	D
7	A
8	B
9	C
10	B

[11] Heat radiation from the sun which enters earth's atmosphere, gets partially reflected by earth's surface, is partially released back to the outer space & partially become trapped due to the existence of greenhouse gasses. This mechanism functions to maintain a habitable & ideal atmospheric temperature.

[12] Design, discovery, and implementation of engineering solutions with an awareness of potential benefits & problems in terms of the environment, economy, and society throughout the lifetime of the design

[13] Environment, social equity, economy, engineering design