

INSTRUCTION:

This section consists of **FOUR (4)** subjective questions. Answer all the questions.

ARAHAN :

*Bahagian ini mengandungi **EMPAT (4)** soalan subjektif. Jawab semua soalan.*

QUESTION 1**SOALAN 1**

Figure 1(a)
Rajah 1(a)

- | | |
|------------|---|
| CLO1
C1 | <p>(a) i. Specify the application of the component in Figure 1(a)
<i>Nyatakan aplikasi komponen pada Rajah 1(a)</i></p> <p style="text-align: right;">[2 mark]
[2 markah]</p> |
| CLO1
C1 | <p>ii. Determine and sketch THREE (3) types of flow inside shell and tube heat exchanger.
<i>Tentukan dan lakarkan TIGA (3) jenis aliran di dalam “shell and tube heat exchanger”.</i></p> <p style="text-align: right;">[9 marks]
[9 markah]</p> |
| CLO2
C2 | <p>(b) i. Numerous types of pipes are used altogether with valves. Please explain FOUR (4) disadvantages of using PVC pipes compared to other types.
<i>Pelbagai paip digunakan bersama dengan injap. Sila terangkan EMPAT (4) kekurangan menggunakan paip PVC dibandingkan dengan jenis lain.</i></p> <p style="text-align: right;">[8 marks]
[8 markah]</p> |

CLO2
C2

- ii. Explain the differences of operation between Shell and Tube Heat Exchangers compared to Force Draft Aerial Cooler Heat Exchanger.

Jelaskan perbezaan pengoperasian “Shell and Tube Heat Exchanger” berbanding “Force Draft Aerial Cooler Heat Exchanger”.

[6 marks]

[6 markah]

QUESTION 2**SOALAN 2**

Figure 2(a)i
Rajah 2(a)i

CLO1
C1

- (a) i. State the exact name for the component shown in **Figure 2(a)i** above and explain its function.

*Nyatakan nama yang tepat bagi komponen ditunjukkan dalam **Rajah 2(a)i** diatas dan terangkan fungsinya.*

[3 marks]

[3 markah]

CLO1
C1

- ii. State application of compressor.

Nyatakan aplikasi pemampat.

[4 marks]

[4 markah]



Figure 2(a)ii
Rajah 2(a)ii

CLO1
C1

Devices in **Figure 2(a)ii** comes in various sizes & types.

*Alatan dalam **Rajah 2(a)ii** wujud dalam berbagai bentuk dan saiz.*

CLO1
C1

iii. Name the device I and II as shown in **Figure 2(a)ii**.

*Namakan alat I dan II seperti ditunjukkan dalam **Rajah 2(a)ii**.*

[2 mark]

[2 markah]

CLO1
C1

iv. State the reason why these devices come in different shapes as shown in **Figure 2(a)ii**

*Nyatakan sebab alat ini wujud dengan bentuk yang berbeza sepertimana **Rajah 2(a)ii***

[4 marks]

[4 markah]

CLO1
C1

(b) i. Briefly clarify the differences between item I and III in **Figure 2(a)ii**.

*Secara ringkas terangkan perbezaan diantara item I dan III dalam **Rajah 2(a)ii**.*

[6 marks]

[6 markah]

CLO2
C2

ii. Pump can be categorized into positive displacement & dynamic type. Based on your understanding, describe the differences between these types?

Pam boleh dikategorikan kepada jenis anjakan positif dan dinamik. Berdasarkan kefahaman anda, huraikan perbezaan diantara keduanya?

[6 marks]

[6 markah]

SULIT

QUESTION 3**SOALAN 3**

- | | | |
|------------|---|---------------------------------|
| CLO1
C1 | <p>(a) i. Define a steam turbine.
<i>Definisikan turbin stim.</i></p> | <p>[2 marks]
[2 markah]</p> |
| CLO1
C1 | <p>ii. Describe the function of steam turbine.
<i>Terangkan fungsi turbin stim.</i></p> | <p>[3 marks]
[3 markah]</p> |
| CLO1
C1 | <p>iii. State TWO (2) major parts of steam turbine and describe their functions.
<i>Nyatakan DUA (2) komponen utama pada turbin stim dan terangkan fungsinya.</i></p> | <p>[6 marks]
[6 markah]</p> |
| CLO1
C1 | <p>iv. Define a gas turbine.
<i>Definisikan turbin gas.</i></p> | <p>[2 marks]
[2 markah]</p> |
| CLO2
C2 | <p>(b) i. Identify the FOUR (4) main types of turbines and explain briefly the mechanism to rotate their rotors.
<i>Kenalpasti EMPAT (4) jenis turbin yang utama dan terangkan secara ringkas mekanisma yang menggerakkan rotornya.</i></p> | <p>[8 marks]
[8 markah]</p> |
| CLO2
C2 | <p>ii. Describe the importance of a gas turbine.
<i>Huraikan kepentingan turbin gas.</i></p> | <p>[4 marks]
[4 markah]</p> |

QUESTION 4**SOALAN 4**

Figure 4(a)
Rajah 4(a)

CLO1
C1

- (a) i. Name the device in **Figure 4(a)**.

*Namakan alatan di dalam **Rajah 4(a)**.*

[1 mark]
[1 markah]

CLO1
C1

- ii. State the function of the device in **Figure 4(a)**.

*Nyatakan fungsi alatan di dalam **Rajah 4(a)**.*

[2 marks]
[2 markah]

CLO1
C1

- iii. A lubrication system plays a vital role in the engine system. State the importance of the lubrication system.

Sistem pelinciran memainkan peranan penting dalam system enjin. Nyatakan kepentingan sistem pelinciran.

[8 marks]
[8 markah]

CLO2
C2

- (b) i. Briefly explain the principle of operation for the device in **Figure 4(a)**

*Terangkan secara ringkas prinsip pengoperasian alatan di dalam **Rajah 4(a)***

[6 marks]
[6 markah]

CLO2
C2

- ii. Describe the major advantages and disadvantages of a diesel engine compared to a petrol engine at the same engine capacity?

Tunjukkan kelebihan dan kekurangan utama enjin diesel dibandingkan dengan enjin petrol pada kapasiti enjin yang sama.

[8 marks]
[8 markah]

SOALAN TAMAT