

**STRUCTURED (100 MARKS)****STRUKTUR (100 MARKAH)****INSTRUCTION:**

This section consists of **FOUR (4)** questions. Answers **ALL** questions.

**ARAHAN:**

*Bahagian ini mengandungi EMPAT (4) soalan. Jawap SEMUA soalan.*

**QUESTION 1****SOALAN 1**CLO1  
C1

- (a) Define Electricity Generation Technology.  
*Definisikan maksud Teknologi Penjanaan Elektrik.*

[6 marks]  
[6 markah]

CLO1  
C2

- (b) Discuss **THREE (3)** impacts of electricity generation industry to the country development?  
*Bincangkan TIGA (3) impak industri penjanaan tenaga kepada pembangunan negara?*

[6 marks]  
[6 markah]

CLO2  
C3

- (c) Aided by a sketch, explain how the water level test on the boiler sight glass is conducted by a boilerman.  
*Berbantuan lakaran, terangkan bagaimana ujian paras air dandang dilakukan oleh jurudandang.*

[13 marks]  
[13 markah]

## QUESTION 2

## SOALAN 2

CLO1  
C2

- (a) Differentiate the cycle of operation between Open Cycle and Closed Cycle gas turbine power plant.

*Bezakan kitar operasi antara loji kuasa gas turbin Kitar Terbuka dan Kitar Tertutup.*

[4 marks]

[4 markah]

CLO2  
C2

- (a) Explain the process occurred in a turbine gas at **THREE (3)** main sections.

*Terangkan proses yang berlaku di dalam gas turbin pada **TIGA (3)** seksyen utama.*

[6 marks]

[6 markah]

CLO2  
C3

- (b) Illustrate the *Intercooling, Regenerating* and *Reheating* method which are employed to increase gas turbine power plant efficiency.

*Ilustrasikan kaedah *Penyejukan antara, Penjanaan Semula dan Pemanasan Semula* untuk meningkatkan kecekapan loji kuasa gas turbin.*

[15marks]

[15 markah]

**QUESTION 3****SOALAN 3**CLO1  
C2

- (a) Sketch the *Ideal Otto Cycle* including a process flow.  
*Lakarkan kitar Ideal Otto beserta aliran proses.*

[4 marks]  
[4markah]

CLO2  
C3

- (b) Explain **THREE (3)** factors of detonation in Internal Combustion Engine.  
*Jelaskan **TIGA (3)** faktor berlakunya ledakan di dalam Enjin Pembakaran Dalam.*

[6 marks]  
[6 markah]

CLO2  
C2

- (c) Aided by a sketch, illustrate a four stroke operation of diesel engines.  
*Berbantuan lakaran, ilustrasikan operasi sebuah enjin diesel empat lejang.*

[15 marks]  
[15markah]

## QUESTION 4

## SOALAN 4

CLO1  
C1

(a) Sketch a flow diagram of the binary cycle type geothermal power plant.

*Lakarkan rajah aliran sebuah kitar loji kuasa geothermal jenis binari.*

[4 marks]

[4 markah]

CLO1  
C2

(b) Suggest **TWO (2)** types of hydroelectric power plant for area where there are no water reservoir dam.

*Cadangkan **DUA (2)** jenis loji kuasa hidro di kawasan yang tiada takungan air yang sebagai empangan.*

[8 marks]

[8 markah]

CLO2  
C3

(c) Explain the hydroelectric plant layout aided by a plant a sketch.

*Terangkan susunatur loji hidroelektrik bebantuan lakaran susunatur.*

[13 marks]

[13 markah]

SOALAN TAMAT