SULIT

POLITEKNIK MALAYSIA

BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK
KEMENTERIAN PENDIDIKAN TINGGI

JABATAN KEJURUTERAAN AWAM

PEPERIKSAAN AKHIR

SESI JUN 2016

DCB6232 : BUILDING TRANSPORTATION

TARIKH : 01 NOVEMBER 2016
MASA : 8.30 AM- 10.30 AM (2 JAM)

Kertas ini mengandungi **SEMBILAN (9)** halaman bercetak.
Bahagian A: Esei berstruktur (2 soalan)
Bahagian B: Esei berstruktur (4 soalan)
Dokumen sokongan yang disertakan: Formula

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SECTION A : 50 MARKS

BAHAGIAN A : 50 MARKAH

INSTRUCTION:

This section consists of **TWO (2)** structured essay questions. Answer **ALL** questions.

ARAHAN :

*Bahagian ini mengandungi **DUA (2)** soalan esei berstruktur. Jawab semua soalan.*

QUESTION 1

SOALAN 1

CLO2
C2

(a) Identify **ONE (1)** constructional requirement for lifts as stated in Uniform Building By-Laws 1984.

*Kenalpasti **SATU (1)** keperluan pembinaan untuk lif seperti yang dinyatakan dalam Undang-Undang Bangunan Seragam 1984.*

[5 marks]

[*5 markah*]

CLO2
C3

(b) Interpret **TWO (2)** requirements of fire lifts as stated in Part VIII: Uniform Building By-Law 1984.

*Tafsirkan **DUA (2)** keperluan bagi lif bomba seperti yang dinyatakan dalam Bahagian VIII: Undang–Undang Bangunan Seragam 1984.*

[8 marks]

[*8 markah*]

CLO2
C4

(c) Explain **SIX (6)** factors to be considered in planning the location of a lift system.

*Terangkan **ENAM (6)** faktor yang perlu dipertimbangkan dalam merancang kedudukan sistem lif.*

[12 marks]

[*12 markah*]

QUESTION 2
SOALAN 2

CLO2 C2

(a) Explain the terms below:
Terangkan istilah-istilah di bawah:

i) Passenger transfer time.
Masa pindahan penumpang.

ii) Door operating time.
Masa pintu beroperasi.

[5 marks]
[*5 markah*]

CLO2 C3

(b) List **THREE (3)** requirements of lighting system based on Factories and Machinery Regulation (Electric Passenger and Goods Lift) 1970.

*Senaraikan **TIGA (3)** keperluan bagi sistem pencahayaan berdasarkan Peraturan Kilang & Jentera (Lif Penumpang dan Barang jenis Elektrik) 1970.*

[8 marks]
[*8 markah*]

CLO2 C4

(c) A group of lift cars with 2.5m/s speed are designed for a 15-storey hotel with 2.9m room height. Given $S_1 = 11$, door width = 1.1m, door speed = 0.4m/s, L = 43.5m and n = 18 persons. Calculate:

Sekumpulan kereta lif berkelajuan 2.5m/s direka bagi sebuah hotel 15 tingkat yang memiliki ketinggian bilik 2.9 m. Diberi nilai $S_1 = 11$, kelebaran pintu lif = 1.1m, kelajuan pintu terbuka = 0.4m/s, L = 43.5m dan n = 18 orang. Kirakan:

i) total upward journey time.
jumlah masa perjalanan menaik.

ii) total downward journey time.
jumlah masa perjalanan menurun.

iii) door operating time.
masa kendalian pintu.

iv) total passenger transfer time.
jumlah masa pindahan penumpang.

[12 marks]
[*12 markah*]

SECTION B : 50 MARKS

BAHAGIAN B : 50 MARKAH

INSTRUCTION:

This section consists of **FOUR (4)** structured essay questions. Answer **TWO (2)** questions only.

ARAHAN:

*Bahagian ini mengandungi **EMPAT (4)** soalan esei berstruktur. Jawab **DUA (2)** soalan sahaja.*

QUESTION 1

SOALAN 1

CLO1 C1 (a) Draw **TWO (2)** types of waiting patterns for pedestrian.
*Lukiskan **DUA (2)** jenis corak menunggu bagi pejalan kaki.*

[5 marks]
[*5 markah*]

CLO1 C2 (b) Compare **TWO (2)** characteristics of an escalator and a travelator.
*Bandingkan **DUA (2)** ciri-ciri bagi sebuah eskalator dan travelator.*

[8 marks]
[*8 markah*]

CLO1 C3 (c) List **FOUR (4)** factors to be considered in locating lift system in a building.
*Senaraikan **EMPAT (4)** faktor yang perlu diambilkira bagi menentukan kedudukan sistem lif dalam bangunan.*

[12 marks]
[*12 markah*]

QUESTION 2

SOALAN 2

CLO1 C1 (a) List **THREE (3)** advantages of hydraulic lift.
*Senaraikan **TIGA (3)** kelebihan lif hidraulik.*

[5 marks]
[*5 markah*]

CLO1 C2 (b) Describe the function of the following components:
Huraikan fungsi bagi komponen-komponen berikut:

i) Lift well.
Lubong lif.

ii) Buffer.
Penimbal.

iii) Guide rails.
Rel panduan.

iv) Counterweight.
Pengimbang berat.

[8 marks]
[*8 markah*]

CLO1 C3 (c) Sketch and label the diagram of a hydraulic lift system.
Lakar dan labelkan rajah bagi sebuah sistem lif hidraulik.

[12 marks]
[*12 markah*]

QUESTION 3
SOALAN 3

CLO1 C1 (a) State **THREE (3)** suitable locations of the escalators.
*Nyatakan **TIGA (3)** lokasi yang sesuai bagi sesebuah eskalator.*

[5 marks]
[5 *markah*]

CLO1 C2 (b) Explain **FOUR (4)** disadvantages of using escalators.
*Terangkan **EMPAT (4)** keburukan menggunakan eskalator.*

[8 marks]
[8 *markah*]

CLO1 C3 (c) Sketch **THREE (3)** types of escalator system arrangement below.
*Lakarkan **TIGA (3)** jenis susunan sistem eskalator di bawah:*

i. Parallel
Selari

ii. Crisscross
Selang-seli

iii. Single in two direction
Satu dalam dua arah

[12 marks]
[12 *markah*]

QUESTION 4
SOALAN 4

CLO1 C1 (a) Define the terms below:
Takrifkan istilah-istilah berikut:

i) Round trip time.
Masa perjalanan sepusingan.

ii) Single floor flight time.
Masa perjalanan satu aras.

[5 marks]
[5*markah*]

CLO1 C2 (b) Identify **FOUR (4)** travelator components and its function.
*Kenalpasti **EMPAT (4)** komponen travelator dan fungsinya.*

[8 marks]
[8 *markah*]

CLO1 C3 (c) A part of Regulation 13 in the Factories and Machinery (Electric Passenger and Goods Lift) Regulation 1970 are written as below. Interpret the regulations by using your own words.

Sebahagian daripada Peraturan 13 dalam Peraturan Kilang dan Jentera (Lif Penumpang dan Barang Jenis Elektrik) 1970 ditulis seperti di bawah. Tafsirkan peraturan-peraturan tersebut menggunakan ayat anda sendiri.

(1) Every landing door shall be fitted with an electromechanical door lock having a retiring cam, which shall ensure:
(a) that the lift car cannot be moved in a direction away from the landing unless every landing door is closed and locked;
(b) that in the event of any landing door being opened the car will come to rest; and

(c) that no landing door can be opened from the landing side unless the car is at rest at that particular landing., or is coasting through that levelling zone with its operating device in the "stop" position, or unless with a special key.

[12 marks]

[12 markah]

SOALAN TAMAT

FORMULA:

i. Car travel distance, L = (Room height x Number of storey)

ii. 80% of maximum capacity, n = (80% x Maximum capacity of car)

iii. Probable number of stops, $S_1 = S - S\left(\frac{S-1}{S}\right)^n$

iv. Total upward journey time, $T_o = S_1\left(\frac{L_n}{SV} + 2V\right)$

v. Total downward journey time, $T_d = \left(\frac{L}{V} + 2V\right)$

vi. Door operating time, $T_o = 2(S_1 + 1)\left(\frac{W}{V_d}\right)$

vii. Total passenger transfer time, $T_p = 2n$

viii. Round trip time, RTT = $(T_u + T_d + T_o + T_p)$

ix. Interval = $\frac{\text{(Round trip time)}}{\text{(Number of cars)}}$

x. Capacity of the group = $\frac{\text{(5 minutes x 60 seconds x Number of car x n)}}{\text{(RTT)}}$