SULIT

BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENGAJIAN TINGGI

JABATAN KEJURUTERAAN AWAM

PENILAIAN ALTERNATIF

SESI 1: 2021/2022

DCB30102 : BUILDING TRANSPORTATION

NAMA PENYELARAS KURSUS: MARIAM BINTI ABDULLAH

KAEDAH PENILAIAN : PEPERIKSAAN ATAS TALIAN

JENIS PENILAIAN : SOALAN BERSTUKTUR DAN ESEI
 (3 SOALAN)

TARIKH PENILAIAN :28 JANUARI 2022

TEMPOH PENILAIAN : 1 JAM 30 MINIT

SECTION A: 50 MARKS

BAHAGIAN A: 50 MARKAH

INSTRUCTION:

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

ARAHAN:

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

QUESTION 1

SOALAN 1

CLO1
C2

a)   Identify the mode of internal circulation below:

Kenal pasti cara peredaran dalaman di bawah:

i. Horizontal

   Mendatar

ii. Vertical

   Menegak

iii. Inclined

   Menyendeng

[6 marks]

[*6 markah*]

CLO1
C2

b)   Differentiate **THREE (3)** uses between electric lifts and hydraulic lifts according to the function of the building.

*Bezakan **TIGA (3)** penggunaan lif elektrik dan lif hidraulik mengikut fungsi bangunan.*

[9 marks]

[9 *markah*]

CLO1
C3

c)   i.   Explain **TWO (2)** differences between hospital elevator and passenger
                elevator.

                *Terangkan **DUA** (2) perbezaan antara lift hospital dengan lift penumpang.*

                                                                              [4 marks]
                                                                              [4*markah*]

        ii.   Illustrate a hospital elevator with the dimensions and details of the
                components.

                Gambarkan sebuah lift hospital berserta dimensi dan detail komponen.

                                                                              [6 marks]
                                                                              [6*markah*]

QUESTION 2

SOALAN 2

CLO1
C2

a)   State **THREE (3)** advantages of using a stair lift.

*Nyatakan **THREE (3)** kelebihan menggunakan stair lift.*

[6 marks]

[*6 markah*]

Step/pallet width z_1 m	Nominal Speed v m/s		
	0,50	0,65	0,75
0,60	3 600 persons/h	4 400 persons/h	4 900 persons/h
0,80	4 800 persons/h	5 900 persons/h	6 600 persons/h
1,00	6 000 persons/h	7 300 persons/h	8 200 persons/h
NOTE 1	Use of shopping trolleys and baggage carts (see Annex I) will reduce the capacity by approx. 80%.		
NOTE 2	For moving walks with a pallet width in excess of 1,00 m the capacity is not increased as users need to hold the handrail, the additional width is to principally enable the use of shopping trolleys and baggage carts.		

Table 1 / Jadual 1: BS EN 115

CLO1
C3

b)   i.   Calculate the traffic capacity (persons/day) in shopping complex with 14 operation hours per day. The step width is 0.8m and speed 0.75 m/s. Refer to Table 1 for the number (people/day).

Kira kapasiti trafik (orang/hari) di kompleks beli-belah dengan 14 jam operasi sehari. Lebar pemijak ialah 0.8m dan kelajuan 0.75 m/s. Rujuk jadual 1 untuk mendapatkan bilangan (orang/hari).

[3 marks]

[*3 markah*]

ii.   Determine **THREE (3)** advantages of escalator in shopping complex.

*Kenalpasti **TIGA (3)** kelebihan eskalator di kompleks membeli belah.*

[6 marks]

[*6 markah*]

CLO1
C3

c)   Illustrate an escalator with its components.

          Gambarkan sebuah eskalator berserta komponennya.

                                                                              [10 marks]
                                                                              [10 *mark*]

SECTION B: 25 MARKS

BAHAGIAN B: 25 MARKAH

INSTRUCTION:

This section consists of **ONE (1)** essay questions. Answers **ALL** questions.

ARAHAN:

Bahagian ini mengandungi SATU (1) soalan esei. Jawab SEMUA soalan.

QUESTION 1

SOALAN 1

CLO 2
C3

a)   Interpret the terms below:

          Perjelaskan istilah-istilah di bawah:

          i)   Arrival rate
                Kadar ketibaan

          ii)   Average car load
                Purata beban kereta

                                                                              [6 marks]
                                                                              [*6 markah*]

CLO 2
C3

b)   Interpret requirement of Factories and Machinery (Electrical Passenger and Goods Lift) Regulation 1970 for :

Jelaskan keperluan Peraturan Kilang dan Jentera (Penumpang Elektrik dan Lif Barang) 1970 untuk :

i.   Lighting requirements for a lift
        Keperluan lampu di lif

ii.   Ventilation requirement for a lift
        Keperluan pengudaraan di lif

[9 marks]
[*9 markah*]

CLO 2
C4

c)   A group of lift cars with 3 m/s speed is designed for 10-storey shopping mall with 5 m level height. Given the door width is 1.2m, door speed is 0.5m/s, L is 50m and n is 20 persons, calculate the round trip time.

Sekumpulan kereta lif berkelajuan 3 m/s direka bagi sebuah pusat membeli belah 10 tingkat yang memiliki ketinggian level 5 m. Diberi nilai kelebaran pintu lif adalah 1.2m, kelajuan pintu terbuka adalah 0.5m/s, L adalah 50m dan n adalah 20 orang. Kirakan masa perjalanan sepusingan.

[10 marks]
[*10 markah*]

SOALAN TAMAT

FORMULAR

Formula:

i. Peak demand in 5 minutes = $\dfrac{(\text{Floor area})(\%\ \text{starting \&stopping time})}{(\text{Floor area per person})(100)}$

    with   Floor area per person = population density
                % starting and stopping time = 17% for unified
                                       = 12% for staggered

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

iii. Load factor, n = (80% x Maximum capacity of car)

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

    with   S = maximum number of stops
                n = 80% of maximum capacity of car

v. Total upward journey time, $T_o = S_1\left(\dfrac{L}{SV} + 2V\right)$

    with S_1 = probable number of stops
                L = car travel distance
                S = maximum number of stops
                V = car speed

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

    with   L = car travel distance
                V = car speed

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

    with S_1 = probable number of stops
                W = door width
                V_d = door speed

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

       with   n = 80% of maximum capacity of car

ix.   Round trip time, $\text{RTT} = \left(T_u + T_d + T_o + T_p\right)$

       with T_u = Total upward journey time
                    T_d = Total downward journey time
                    T_o = Door operating time
                    T_p = Total passenger transfer time

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

xi. $\text{Capacity of the group} = \dfrac{(5 \text{ minutes} \times 60 \text{ seconds} \times \text{Number of cars} \times n)}{(\text{RTT})}$

       with   n = 80% of maximum capacity of car
                  RTT = Round Trip Time