SULIT

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

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

JABATAN PERDAGANGAN

PEPERIKSAAN AKHIR

SESI I : 2025/2026

DPB20093 : BUSINESS MATHEMATICS

TARIKH : 24 NOVEMBER 2025
MASA : 11.30 PAGI - 1.30 PETANG (2 JAM)

Kertas ini mengandungi **SEBELAS (11)** halaman bercetak.

Struktur (4 soalan)

Dokumen sokongan yang disertakan : Formula

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

INSTRUCTION:
This section consists of **FOUR (4)** questions. Answer **ALL** questions.

ARAHAN :
*Bahagian ini mengandungi **EMPAT (4)** soalan. Jawab **SEMUA** soalan.*

QUESTION 1

SOALAN 1

CLO1 a) Identify the value of x.
Kenalpasti nilai x.

i) $8x - 3 = 5x$

[2 marks]
[*2 markah*]

ii) $\frac{2}{3} = \frac{3x}{3 + 5x}$

[2 marks]
[*2 markah*]

CLO1 b) Simplify the equation below :
Permudahkan persamaan di bawah :

i) $2x^2 + 9x = 5$

[2 marks]
[*2 markah*]

ii) $2x - 3y = 13$
$6x + 5y = -3$

[4 marks]
[*4 markah*]

CLO1

c) Khairul Co. contributes products from three factories P, Q and R with capacity of 200 units, 350 units and 600 units respectively. The product will be sent to three retailers I, II, and III with a total demand of 250 units, 500 units and 400 units respectively. Transportation costs per unit (in RM) are given as below:

Syarikat Khairul menyumbangkan produk daripada tiga kilang P, Q dan R yang berkapasiti 200 unit, 350 unit dan 600 unit. Produk ini akan dihantar kepada tiga peruncit iaitu I, II dan III dengan jumlah permintaan oleh peruncit masing-masing ialah 250 unit, 500 unit dan 400 unit. Kos pengangkutan seunit (dalam RM) adalah seperti di bawah:

Retailers / *peruncit* / Factories/ *kilang*	I	II	III
P	9	4	6
Q	8	3	7
R	6	4	8

i) Transfer the above information into the transportation matrix
Pindahkan maklumat di atas ke bentuk matrik pengangkutan

[5 marks]
[5 *markah*]

ii) Calculate the transportation cost by using :
Kirakan kos pengangkutan menggunakan :

1. The North West Corner Method
Kaedah Pepenjuru Barat Laut

[5 marks]
[5 *markah*]

2. Minimum Cost Method
Kaedah Kos Minimum

[5 marks]
[5 *markah*]

QUESTION 2

SOALAN 2

CLO2

(a) Deco Harmoni Sdn Bhd has produced a rattan-based product. The following information is obtained:

Deco Harmoni Sdn Bhd telah menghasilkan produk berasaskan rotan. Maklumat berikut diperoleh:

- Total sales volume = 10,000 units
- Price per unit = RM15
- Variable cost = RM8.50
- Fixed cost = RM60,000
- Profit = RM100,000

- *Jumlah jualan keseluruhan = 10,000 unit*
- *Harga seunit = RM15*
- *Kos berubah = RM8.50*
- *Kos tetap = RM60,000*
- *Keuntungan = RM100,000*

Based on the data given, you are required to count:

Berdasarkan data yang diberikan, anda dikehendaki mengira:

i) The contribution margin

Margin caruman

[2 marks]
[*2 markah*]

ii) The contribution margin ratio

Nisbah margin caruman

[2 marks]
[*2 markah*]

CLO2

(b) The accountant of Innovix Trading has provided the following information to guide the company in planning activities for the next coming year:

Akauntan Innovix Trading telah menyediakan maklumat berikut untuk membantu syarikat dalam merancang aktiviti bagi tahun hadapan:

- Selling price = RM50 per unit
- Direct materials = RM25
- Direct labour = RM3
- Variable overhead = RM2
- Fixed overhead = RM150,000
- Other fixed costs = RM100,000
- Sales volume = 40,000

- *Harga jualan = RM50 seunit*
- *Bahan langsung = RM25*
- *Buruh langsung = RM3*
- *Overhed berubah = RM2*
- *Overhed tetap = RM150,000*
- *Kos tetap lain = RM100,000*
- *Jumlah jualan = 40,000 unit*

Approximate the quantity and value of the Break-even point (BEP), when the selling price, variable costs per unit and fixed costs are not expected to change.

Anggarkan kuantiti dan nilai titik pulang modal (BEP) apabila harga jualan, kos berubah seunit, dan kos tetap dijangka tidak berubah.

[6 marks]
[*6 markah*]

CLO2

(c) Luxora Enterprise Sdn Bhd had launched a new product. The variable cost for 100 units of the product is RM1,350 and the fixed costs of the product is RM20,000. In the first production operation, it has produced 5,000 units with a selling price of RM20 per unit.

Luxora Enterprise Sdn Bhd telah melancarkan produk baharu. Kos berubah bagi 100 unit produk ialah RM1,350, manakala kos tetap produk ialah RM20,000. Dalam operasi pengeluaran pertama, syarikat ini telah menghasilkan 5,000 unit dengan harga jualan RM20 seunit.

Using the information given, calculate:
Menggunakan maklumat yang diberikan, kira:

i) The profit gained by Luxora Enterprise if all their new products are sold.

Keuntungan yang diperoleh oleh Luxora Enterprise jika semua produk baharu mereka dijual.

[6 marks]
[*6 markah*]

ii) The total number of units to be sold to earn a profit of RM20,000.

Jumlah unit yang perlu dijual untuk memperoleh keuntungan sebanyak RM20,000.

[3 marks]
[*3 markah*]

iii) The total revenue of 6,000 units are sold.

Jumlah hasil jika 6,000 unit dijual.

[2 marks]
[*2 markah*]

iv) The profit gained for the number of units sold in (iii) with the fixed cost reduced by 10%.

Keuntungan yang diperoleh bagi jumlah unit yang dijual dalam (iii) dengan kos tetap dikurangkan sebanyak 10%.

[4 marks]
[*4 markah*]

QUESTION 3
SOALAN 3

CLO2

(a) Mr Mikael saves RM30,000 for 4 years in his savings account. He is earning a simple interest rate of 10% per annum. Count the simple interest he earned.

Encik Mikael menyimpan RM30,000 selama 4 tahun dalam akaun simpanannya. Dia memperoleh kadar faedah mudah sebanyak 10% setahun. Kirakan faedah mudah yang diperolehnya.

[4 marks]
[*4 markah*]

(b) Mr Jason deposited a sum of money on 3 March 2024 in an investment fund which offered a simple interest of 7% per annum. On 12 June 2024, RM2,800 was withdrawn from the fund. Articulate the initial deposit using the Banker's Rule.

Encik Jason telah mendepositkan sejumlah wang pada 3 Mac 2024 dalam satu dana pelaburan yang menawarkan faedah mudah sebanyak 7% setahun. Pada 12 Jun 2024, RM2,800 telah dikeluarkan daripada dana tersebut. Artikulasikan jumlah deposit awal dengan menggunakan Kaedah Jurubank.

[6 marks]
[*6 markah*]

CLO2

(c) Miss Aisyah, a businesswoman, receives a promissory note for RM1,500 with interest of 10% per annum that is due in 60 days. The note is dated 10 April 2023. The note is discounted on 15 April 2023 at a bank that charges 12% discount.

Cik Aisyah, seorang ahli perniagaan, menerima nota janji bayar sebanyak RM1,500 dengan faedah 10% setahun yang akan matang dalam 60 hari. Nota tersebut bertarikh 10 April 2023. Nota itu didiskaunkan pada 15 April 2023 di sebuah bank yang mengenakan diskaun sebanyak 12%.

Calculate:
Kira:

i) The maturity date
Tarikh matang

[5 marks]
[5 *markah*]

ii) The maturity value
Nilai matang

[3 marks]
[*3 markah*]

iii) The discount period
Tempoh diskaun

[2 marks]
[2 *markah*]

iv) The proceeds
Hasilnya

[5 marks]
[*5 markah*]

QUESTION 4

SOALAN 4

CLO2 (a) Define the cash discount terms:
Takrifkan syarat diskaun tunai:

i) 3/10, net 20

[2 marks]
[*2 markah*]

ii) 5/10, 3/20, n/60

[2 marks]
[*2 markah*]

CLO2 (b) Thera Company is buying new equipment. The supplier issued an invoice of RM10,000 dated 18 April 2024 with offered trade discount of 25% and cash discount terms of 9/10, n/30. Extrapolate:

Syarikat Thera membeli peralatan baharu. Pembekal memberikan invois sebanyak RM10,000 bertarikh 18 April 2024 dengan tawaran diskaun dagangan sebanyak 25% dan syarat diskaun tunai 9/10, n/30. Ektrapolasikan:

i) The trade discount offered
Diskaun perdagangan yang ditawarkan

[2 marks]
[2 *markah*]

ii) The cash discount offered
Diskaun tunai yang ditawarkan

[2 marks]
[*2 markah*]

iii) The net payment if the invoice is paid on 28 April 2024
Bayaran bersih jika invois dibayar pada 28 April 2024

[2 marks]
[*2 markah*]

CLO2

(c) Solve the problem below:
Selesaikan masalah di bawah:

(i) A book shop received an invoice for the purchase of 180 pens at RM3.50 each and 140 exercise books at RM2.50 each. The invoice was dated 20 April 2019. The book shop was offered trade discounts of 8% and 3%, and cash discount terms 7/10, 5/20 and n/30. The invoice was paid on 2 May 2022.

Sebuah kedai buku menerima invois untuk pembelian 180 batang pen pada harga RM3.50 setiap satu dan 140 buku latihan pada harga RM2.50 setiap satu. Invois tersebut bertarikh 20 April 2019. Kedai buku itu ditawarkan diskaun perdagangan sebanyak 8% dan 3%, serta syarat diskaun tunai 7/10, 5/20 dan n/30. Invois tersebut dibayar pada 2 Mei 2022.

1. The single discount that is equivalent to the given trade discount
Diskaun tunggal yang bersamaan dengan diskaun perdagangan yang diberikan

[3 marks]
[*3 markah*]

2. The amount of payment made on 2 May 2022.
Jumlah bayaran yang dibuat pada 2 Mei 2022.

[6 marks]
[*6 markah*]

(ii) TransXpress Company received a bill from SwiftMove Logistics Company dated 13 June worth RM4,800 with credit terms of 3/10 E.O.M. If TransXpress Company will pay the invoice on July 9, how much will TransXpress Company have to pay?

Syarikat TransXpress menerima bil daripada Syarikat Logistik SwiftMove bertarikh 13 Jun bernilai RM4,800 dengan syarat kredit 3/10 E.O.M. Jika Syarikat TransXpress membayar invois pada 9 Julai, berapakah jumlah yang perlu dibayar oleh Syarikat TransXpress?

[6 marks]
[*6 markah*]

SOALAN TAMAT

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$P = pQ - (FC + VCQ)$

P = TR – TC

TC = VCQ + FC

TR = pQ

TVC = VCQ

$BEP(Q) = \frac{FC}{p - VC}$

BEP (RM) = BEP (Q) x p

CM = p – VC

$CMR = \frac{p - Vc}{p} x100$

I = Prt

I = IP – CP

$I = \left(\frac{p_r + y_r}{2}\right) t \quad @ \; I = Pr_{\frac{(t+1)}{2}}$

$Y = \frac{P}{t}$

IP = DP + (MP x n) @ IP = DP + S @ IP = DP + P + I @ IP = CP + I

DP = Rate (%) x CP

P = CP- DP + other payments

S =P (1 + rt) @ S = P +I

$D = Sdt$

$H = S - D$

$MP = \frac{S}{n} \quad @ \; MP = \frac{S}{12t}$

$S = P(1+r)^t$

$S = P\left(1 + \frac{r}{m}\right)^{t \cdot m} \; @ \; S = P(1+i)^n$

$P = \frac{S}{\left(1+\frac{r}{m}\right)^{tm}} \qquad @ \; P = \frac{S}{(1+i)^n}$

I= S-P

$P = R\left[\frac{1 - \left(1 + \frac{r}{m}\right)^{-n}}{\frac{r}{m}}\right]$

Total repayment =Rx n

I = (R x n) – P

D = r x LP

NP = LP – D, NP =LP(1-r)

$NP = LP(1-r_1)(1-r_2)\ldots$

$LP = \frac{NP}{1 - r}$

$r = 1 - (1-r_1)(1-r_2)(1-r_3)$

$R = \frac{\sum n}{\sum N} x \; I$

$\sum n = \left(\frac{n+1}{2}\right) n$

$\sum N = \left(\frac{N+1}{2}\right) N$

EP = (MP x n) – R

$P = S(1 + rt)^{-1} \quad @ \; P = \frac{S}{(1 + rt)}$