



**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 II : 2025/2026

DPB20093 : BUSINESS MATHEMATICS

TARIKH : 12 MEI 2026

MASA : 11.30 PAGI - 1.30 PETANG (2 JAM)

Kertas ini mengandungi **SEPULUH (10)** 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)** structure questions. Answer **ALL** questions.

ARAHAN:

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

QUESTION 1**SOALAN 1**

- CLO1 (a) Identify the value of k.

Kenal pasti nilai k.

(i) $9k - 6 = 4k + 2(k - 2)$

[2 marks]

[2 markah]

(ii) $\frac{2x}{x - 3} = 6$

[2 marks]

[2 markah]

- CLO1 (b) Simplify the equation below:

Permudahkan persamaan di bawah:

$$6a + b = 18$$

$$4a + b = 14$$

[6 marks]

[6 markah]

- CLO1 (c) Arizona Plumbing Company produces a full line of bathtubs. The firm must decide which factories should supply bathtub to which warehouses. Transportation costs per bathtub for Arizona Plumbing are as follows:
- Syarikat Arizona Plumbing menghasilkan rangkaian penuh tab mandi. Firma tersebut perlu membuat keputusan tentang kilang mana yang perlu membekalkan tab mandi kepada gudang-gudang tertentu. Kos pengangkutan bagi setiap unit tab mandi untuk Syarikat Arizona Plumbing adalah seperti berikut:*

Table 1 / Jadual 1

To / Ke From / Daripada	Shah Alam	Kulim	Prai
Ipoh	RM5	RM4	RM3
Genting	RM8	RM4	RM6
Kemaman	RM9	RM7	RM5

Factory capacity and warehouse requirements are as follows:

Kapasiti kilang dan keperluan gudang adalah seperti berikut:

Table 2 / Jadual 2

Factory / Kilang	Capacity / Kapasiti	Warehouse / Gudang	Requirements / Keperluan
Ipoh	100 unit	Shah Alam	300 unit
Genting	300 unit	Kulim	200 unit
Kemaman	300 unit	Prai	200 unit

Based on the information given in Table 1 and 2:

Berdasarkan maklumat yang diberikan dalam Jadual 1 dan 2:

- (i) Transfer the above information into the transportation matrix table.

Pindahkan maklumat di atas ke bentuk jadual matriks pengangkutan.

[5 marks]

[5 markah]

- (ii) Calculate the transportation cost by using the North-West Corner Rule.

Kira kos pengangkutan menggunakan Kaedah Pepenjuru Barat-Laut.

[5 marks]

[5 markah]

- (iii) Calculate the transportation cost by using the Minimum Cost Method.

Kira kos pengangkutan menggunakan Kaedah Kos Minimum.

[5 marks]

[5 markah]

QUESTION 2

SOALAN 2

NURA Ceramics Sdn. Bhd. plans to produce a new organic-based ceramic product starting next year. As a consultant, you were appointed to assist the company in planning the new production. The following information is provided for the first year of production:

NURA Ceramics Sdn. Bhd. merancang untuk menghasilkan produk seramik berasaskan organik yang baharu pada tahun hadapan. Sebagai seorang perunding, anda telah dilantik untuk membantu pihak syarikat membuat perancangan terbaik bagi pengeluaran produk tersebut. Berikut adalah maklumat bagi tahun pertama pengeluaran:

Sales Volume / Jumlah Jualan	8000 units / unit
Price per unit / Harga Seunit	RM 25.00
Variable cost / Kos Berubah	RM 8.00
Fixed cost / Kos Tetap	RM 100 000

Table 3 / Jadual 3

CLO2

- (a) Referring to the Table 3, you are required to:

Merujuk pada Jadual 3, anda dikehendaki untuk:

- (i) State the Profit Function.
Nyatakan Fungsi Untung.
- [2 marks]
[2 markah]
- (ii) Count the contribution margin ratio.
Kirakan nisbah margin caruman.
- [2 marks]
[2 markah]
- CLO2 (b) Approximate the number of units that must be sold by NURA Ceramics Sdn. Bhd. if the targeted profit is RM 100, 000.
Anggarkan kuantiti yang perlu dijual oleh NURA Ceramics Sdn. Bhd. jika sasaran keuntungan adalah RM 100, 000.
- [6 marks]
[6 markah]
- CLO2 (c) Harmony Drinks Sdn. Bhd. is a company that specializes in producing herbal and organic beverage boxes for the local market. The management plans to expand sales to nearby towns and expects a steady demand throughout the month. The company is considering producing 50,000 boxes next month and each box is sold at RM6.00, and the company has provided the following cost information for production:
Harmony Drinks Sdn. Bhd. ialah sebuah syarikat yang mengeluarkan kotak minuman herba dan organik untuk pasaran tempatan. Pihak pengurusan merancang untuk mengembangkan jualan ke bandar-bandar berhampiran dan menjangkakan permintaan yang stabil sepanjang bulan. Pihak syarikat bercadang untuk menghasilkan 50,000 kotak dan setiap kotak dijual pada harga RM6.00, dan maklumat kos pengeluaran yang diberikan ialah:

Production Cost / <i>Kos Pengeluaran</i>	Price per box / <i>Harga sekotak</i>
Raw Material / <i>Bahan Mentah</i>	RM 0.80
Direct labour / <i>Pekerja langsung</i>	RM 1.20
Overhead / <i>Overhed</i>	RM 0.50
Fixed cost / <i>Kos tetap</i>	RM 4,000
Administration variable cost / <i>Kos pentadbiran berubah</i>	RM 1.50
Administration fixed cost / <i>Kos pentadbiran tetap</i>	RM 2,000

Table 4 / *Jadual 4*

Referring to the Table 4, you are required to calculate:

Merujuk pada Jadual 4, anda dikehendaki untuk mengira:

- (i) Break-Even Point (BEP) in terms of quantity and sales.

Titik Pulang Modal (TPM) dari segi kuantiti dan jualan.

[5 marks]

[5 markah]

- (ii) Quantity sold to gain profits of RM60,000.

Kuantiti dijual untuk mendapat keuntungan sebanyak RM60,000.

[5 marks]

[5 markah]

- (iii) The changes in profit if the sales unit reaches 60,000 boxes of products.

Perubahan dalam keuntungan jika unit jualan mencapai 60,000 kotak produk.

[5 marks]

[5 markah]

QUESTION 3**SOALAN 3**

- CLO2 (a) Nurizz Aleesya wants to purchase an Apple desktop computer priced at RM4,500 from Seng SyberLink. She pays a 10% deposit, and the balance is settled through equal monthly instalments at a fixed interest rate of 8% per annum for two years. Calculate the total amount payable by Nurizz Aleesya.
- Nurizz Aleesya ingin membeli sebuah komputer meja Apple berharga RM4,500 daripada Seng SyberLink. Beliau membayar deposit sebanyak 10% dan baki bayaran dijelaskan melalui ansuran bulanan yang sama pada kadar faedah tetap 8% setahun selama dua tahun. Hitungkan jumlah keseluruhan bayaran yang perlu dibayar oleh Nurizz Aleesya.*
- [4 marks]
[4 markah]
- CLO2 (b) Izzul Danial invested an amount of X in Berkat Bank. After 28 months, his investment was worth RM45,885. If the simple interest rate is 8% per annum, express the value of X.
- Izzul Danial melaburkan sejumlah wang X di Bank Berkat. Selepas 28 bulan, pelaburannya bernilai RM45,885. Jika kadar faedah mudah ialah 8% setahun, nyatakan nilai X.*
- [6 marks]
[6 markah]
- CLO2 (c) Azra is borrowed RM7,000 from Alia by issuing a promissory note dated on 24th May 2022, with an interest rate of 5% per annum for 100 days. Due to some difficulties, Alia discounted the note at a rate of 4.6% at the bank on 1st October 2022. Calculate:
- Azra meminjam RM7,000 daripada Alia dengan mengeluarkan nota janji hutang bertarikh 24 Mei 2022 dengan kadar faedah 5% setahun selama 100 hari. Disebabkan beberapa kesukaran, Alia mendiskaunkan nota tersebut pada kadar 4.6% di bank pada 1 Oktober 2022. Kira:*

- (i) The maturity dates.

Tarikh matang.

[4 marks]

[4 markah]

- (ii) Maturity value of the note.

Nilai kematangan nota tersebut.

[3 marks]

[3 markah]

- (iii) The discount periods.

Tempoh diskaun.

[2 marks]

[2 markah]

- (iv) The discount value.

Nilai diskaun.

[4 marks]

[4 markah]

- (v) The proceeds received by Alia.

Hasil yang diterima oleh Alia.

[2 marks]

[2 markah]

QUESTION 4**SOALAN 4**

- CLO2 (a) Siti wanted to buy new sofa for her mom as a birthday present. She went to Wah Chan Furniture to make a survey. She found her mom's favorite color sofa with the list price of RM2,800. A trade discount of 25% is offered. Identify the net price of the sofa.

Siti ingin membeli sofa baharu untuk ibunya sebagai hadiah hari lahir. Beliau pergi ke Wah Chan Furniture untuk membuat tinjauan awal. Beliau telah menjumpai warna sofa kegemaran ibunya dengan senarai harga sebuah sofa ialah RM2,800. Diskaun perdagangan sebanyak 25% diberikan. Kenal pasti harga bersih sofa tersebut.

[4 marks]

[4 markah]

- CLO2 (b) Explain the cash discount terms below.

Terangkan istilah-istilah diskaun tunai di bawah.

- (i) 2/15 net 35
2/15 bersih 35

[2 marks]

[2 markah]

- (ii) 3/10 ROG
3/10 ROG

[2 marks]

[2 markah]

- (iii) 3/20 EOM
3/20 EOM

[2 marks]

[2 markah]

CLO2

(c) Solve the problem below:

Selesaikan masalah di bawah:

- (i) Adrian wants to buy a machine listed RM6,600 for his printing shop to enhance the production productivity. The machine is offered a trade discount of 25%, 15% and 10%. Calculate the net price.

Adrian mahu membeli sebuah mesin yang disenaraikan RM6,600 untuk kedai cetakannya. bagi meningkatkan produktiviti pengeluaran. Mesin itu telah ditawarkan diskaun dagangan sebanyak 25%, 15% dan 10%. Kira harga bersih.

[5 marks]

[5 markah]

- (ii) Ah Bon has received an invoice amounting to RM8,200 dated 10th April 2024, in terms of 3/10 Net 30 EOM. Calculate the last day for getting a cash discount and compute the amount to be paid if the discount is taken.

Ah Bon telah menerima inoivis berjumlah RM8,200 bertarikh 10 April 2024, dari segi 3/10 Net 30 EOM. Kirakan hari terakhir untuk mendapatkan diskaun tunai dan hitung jumlah yang perlu dibayar jika diskaun diambil.

[5 marks]

[5 markah]

- (iii) An invoice amounting to RM12,000 dated 10th September 2024 has the term 4/10 Net 30 ROG for the shipment of lamps that arrived on October 29. Calculate the last day for taking a cash discount and calculate the amount to be paid if discount is taken.

Sebuah inoivis berjumlah RM12,000 bertarikh 10 September 2024 mempunyai terma 4/10 Net 30 ROG untuk penghantaran lampu yang tiba pada 29 Oktober. Kira hari terakhir untuk mengambil diskaun tunai dan kira jumlah yang perlu dibayar jika diskaun diambil.

[5 marks]

[5 markah]

SOALAN TAMAT

FORMULA BUSINESS MATHEMATICS DPB20093

Quadratic Equation	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Total Variable Cost	$TVC = VCQ$
Total Revenue	$TR = pQ$
Total Cost	$TC = FC + TVC$
Profit	$P = pQ - VCQ - FC \quad @ \quad TR - TC$
Break-Even Point in unit	$BEP(Q) = \frac{FC}{p - VC}$
Break-Even Point in sales	$BEP(RM) = BEP(Q) \times p$
Contribution Margin	$CM = p - VC$
Contribution Margin Ratio	$CM = \frac{p - VC}{p} \times 100$
Interest	$I = Prt$
Maturity Value	$S = P + I \quad \text{or} \quad P(1 + rt)$
Discounted Rate	$D = Sdt$
Proceed	$H = S - D \quad \text{or} \quad S(1 - dt)$
Trade Discount	$D = r \times LP$
Net Price	$NP = LP - D \quad @ \quad LP(1 - r)$
Net Price	$NP = LP(1 - r_1)(1 - r_2)(1 - r_3) \dots$
List price	$LP = \frac{NP}{1 - r}$
Rate	$r = 1 - (1 - r_1)(1 - r_2)(1 - r_3) \dots$
Price	$P = CP - DP + \text{Other payments}$

Down Payment	$DP = \text{Rate } (\%) \times CP$
Interest	$I = IP - CP$
Interest	$I = \left(\frac{Pr + Yr}{2} \right) t, \quad i = \frac{Pr(t+1)}{2}$
Instalment Price	$IP = DP + (MP \times n) \quad \text{or} \quad DP + S \quad \text{or} \quad DP + P + I \quad \text{or} \quad CP + I$
Monthly Payment	$MP = \frac{s}{n} \quad \text{or} \quad \frac{s}{12t}$
Rebate	$\text{Rebate} = \left(\frac{n+1}{2} \right)^n \times I$ $\left(\frac{N+1}{2} \right)^N$
Early payment	$EP = (MP \times n) - \text{Rebate}$
Future Value	$S = P(1 + r)^t \quad \text{or} \quad P(1 + \frac{r}{m})^{tm}$
Present Value	$P = \frac{S}{(1 + \frac{r}{m})^{tm}}$

FORMULA BUSINESS MATHEMATICS DPB20093

Quadratic Equation	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Total Variable Cost	$TVC = VCQ$
Total Revenue	$TR = pQ$
Total Cost	$TC = FC + TVC$
Profit	$P = pQ - VCQ - FC \quad @ \quad TR - TC$
Break-Even Point in unit	$BEP(Q) = \frac{FC}{p - VC}$
Break-Even Point in sales	$BEP(RM) = BEP(Q) \times p$
Contribution Margin	$CM = p - VC$
Contribution Margin Ratio	$CM = \frac{p - VC}{p} \times 100$
Interest	$I = Prt$
Maturity Value	$S = P + I \quad \text{or} \quad P(1 + rt)$
Discounted Rate	$D = Sdt$
Proceed	$H = S - D \quad \text{or} \quad S(1 - dt)$
Trade Discount	$D = r \times LP$
Net Price	$NP = LP - D \quad @ \quad LP(1 - r)$
Net Price	$NP = LP(1 - r_1)(1 - r_2)(1 - r_3).....$
List price	$LP = \frac{NP}{1 - r}$
Rate	$r = 1 - (1 - r_1)(1 - r_2)(1 - r_3).....$
Price	$P = CP - DP + \text{Other payments}$

Down Payment	$DP = \text{Rate (\%)} \times CP$
Interest	$I = IP - CP$
Interest	$I = \left(\frac{Pr + Yr}{2} \right) t, i = \frac{Pr(t+1)}{2}$
Instalment Price	$IP = DP + (MP \times n) \text{ or } DP + S \text{ or } DP + P + I \text{ or } CP + I$
Monthly Payment	$MP = \frac{s}{n} \text{ or } \frac{s}{12t}$
Rebate	$\text{Rebate} = \left(\frac{n+1}{2} \right)^n \times I$ $\left(\frac{N+1}{2} \right)^N$
Early payment	$EP = (MP \times n) - \text{Rebate}$
Future Value	$S = P(1 + r)^t \text{ or } P(1 + \frac{r}{m})^{tm}$
Present Value	$P = \frac{S}{(1 + \frac{r}{m})^{tm}}$