

SULIT



**BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENDIDIKAN MALAYSIA**

JABATAN PERDAGANGAN

PEPERIKSAAN AKHIR

SESI JUN 2018

DPB2033 : BUSINESS MATHEMATICS

TARIKH : 30 OKTOBER 2018

MASA : 11.15 PAGI - 1.15 TENGAHARI (2 JAM)

Kertas ini mengandungi **LAPAN (8)** halaman bercetak.

Struktur (4 soalan)

Dokumen sokongan yang disertakan : Jadual PVIF, Jadual PVIFA dan Formula

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

INSTRUCTION:

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

ARAHAN:

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

QUESTION 1**SOALAN 1**

CLO 1
C1

a) Differentiate these equations:

Bezakan persamaan berikut:

i. $y = x^2(2x + 8)$

[7 marks]

[7 markah]

ii. $y = \sqrt{4x + 9}$

[8 marks]

[8 markah]

CLO 1
C2

b) The demand for an item produced by Jazzella is given by $p + 0.2x = 100$ with p is the price per unit and x is the quantity demanded. The total cost, $C(x)$ of producing x units of the item is given by $C(x) = 800 + 30x$ with x is the level of output. Calculate:

Permintaan terhadap item yang dikeluarkan oleh Jazzella ialah $p + 0.2x = 100$ dengan p adalah harga per unit dan x ialah kuantiti yang diminta. Jumlah kos, $C(x)$ menghasilkan unit x adalah $C(x) = 800 + 30x$ dengan x ialah tahap keluaran. Kira:

i. The total revenue function.

Fungsi jumlah hasil.

[2 marks]

[2 markah]

ii. The total profit function.

Fungsi jumlah untung.

[2 marks]

[2 markah]

iii. The level of production in unit which will maximize the profit.

Tahap pengeluaran dalam unit yang dapat memaksimumkan keuntungan.

[4 marks]

[4 marks]

iv. Based on answer from the question b (iii), find the level of selling price.

Berdasarkan jawapan bagi soalan b (iii), dapatkan harga paras jualan.

[2 marks]

[2 markah]

QUESTION 2

SOALAN 2

Abdul Fattah is the Financial Planner at SUMEGAH Sdn. Bhd. He was asked to evaluate two investment projects and then present the result to his top management on which project would profit the most. He named them as Project K and Project L. Both projects will cost RM 750,000. The estimated cash flow for the projects is given as follows:

Abdul Fattah adalah Perancang Kewangan di SUMEGAH Sdn Bhd. Beliau diminta untuk menilai dua projek pelaburan dan kemudian membentangkan hasilnya kepada pihak pengurusan atasan projek yang manakah paling menguntungkan. Projek itu dinamakan sebagai Projek K dan Projek L. Kedua-dua projek melibatkan kos sebanyak RM 750,000. Anggaran aliran tunai masuk bagi projek-projek tersebut adalah seperti yang tertera:

	Year	1	2	3	4	5
Cash Inflow (RM)	Project K	-	230,000	250,000	310,000	340,000
	Project L	180,000	200,000	240,000	260,000	280,000

a) Calculate the following elements for both projects:

Kirakan elemen yang berikut bagi kedua-dua projek:

i. Payback Period

Tempoh Bayar Balik

[4 marks]

[4 markah]

CLO 1
C2

- ii. Net Present Value if the cost of capital is 12%.
Nilai Kini Bersih jika kos modal adalah sebanyak 12%.

[8 marks]

[8 markah]

- iii. Profitability Index
Indeks Keberuntungan

[3 marks]

[3 markah]

CLO 1
C3

- b) Calculate and determine:
Kirakan dan tentukan:

- i. Average Rate of Return
Kadar Pulangan Purata

[8 marks]

[8 markah]

- ii. Based on the evaluation, which project should Abdul Fattah propose to the top management? Why?

Berdasarkan penilaian, projek manakah yang patut diusulkan Abdul Fattah kepada pengurusan atasan untuk dipilih? Mengapa?

[2 marks]

[2 markah]

QUESTION 3

SOALAN 3

a)

No. 002309

23rd September 2017

Sixty days after date I promise to pay to the order of Ella, Ringgit Malaysia: Six Thousand Only for value received with interest at the rate of 10% per annum until paid.

Fiona
Fiona

No. 002309

23hb September 2017

Enam puluh hari selepas tarikh ini saya berjanji untuk membayar Ella, Ringgit Malaysia: Enam Ribu Sahaja, di mana nilai ini akan mendapat faedah sebanyak 10% setahun sehingga ianya dibayar.

Fiona
Fiona

CLO 2
C2

From the information, determine (use exact time method);

Berdasarkan maklumat di atas, tentukan (gunakan kaedah masa tepat);

i. The maturity date of the note.

Tarikh matang nota janji ini.

[1 mark]
[1 markah]

ii. The interest of the note.

Jumlah faedah bagi nota janji ini.

[2 marks]
[2 markah]

iii. The maturity value.

Jumlah matang bagi nota janji ini.

[2 marks]
[2 marks]

- iv. Calculate the proceed value received by Ella if she sells the note to a bank which discounts it at 12% per annum on the 15th November 2017.

Kirakan hasil yang diperolehi oleh Ella jika beliau menjual nota janji berkenaan kepada bank yang mengenakan kadar diskaun 12% setahun pada 15hb November 2017.

[5 marks]

[5 markah]

CLO 2
C3

- b) Maryam bought a refrigerator listed at RM800 cash through an instalment plan. She paid RM100 as a down payment. The balance was settled by making 10 monthly instalments. If the interest rate charged was 8.5% per annum on the original balance, find:

Maryam telah membeli sebuah peti sejuk pada harga RM800 secara pelan bayaran ansuran. Beliau membayar RM100 sebagai wang pendahuluan. Bakinya akan dijelaskan secara ansuran selama 10 bulan. Jika kadar faedah berdasarkan baki sebenar adalah 8.5% setahun, kirakan:

- i. The total interest charged.
Jumlah faedah yang dikenakan.

[4 marks]

[4 markah]

- ii. The instalment price.
Jumlah ansuran.

[3 marks]

[3 markah]

- iii. Monthly payment.
Bayaran bulanan.

[3 marks]

[3 markah]

- iv. Determine the outstanding balance if she wishes to settle all her debts after the third payment.
Tentukan baki tunggakan jika beliau ingin menyelesaikan semua hutang selepas bayaran ketiga.

[5 marks]

[5 markah]

QUESTION 4

SOALAN 4

NAJ Hijabs produces shawl located in Senawang, Kulim and Dungun. These three suppliers are able to supply to another four agents who are located in Muar, Putrajaya, Ipoh and Jeli. The followings are number of shawl available in each branch and number of items needed by each agent:

NAJ Hijabs mengeluarkan selendang yang terletak di Senawang, Kulim dan Dungun. Ketiga-tiga cawangan ini mampu membekalkan kepada empat agen yang berada di Muar, Putrajaya, Ipoh dan Jeli. Berikut adalah bilangan selendang yang ada di setiap cawangan dan bilangan item yang diperlukan bagi setiap agen :

<u>Branch / Cawangan (units/unit)</u>		<u>Agents / Agen (units / unit)</u>	
Senawang	: 8,000	Muar	: 5,500
Kulim	: 7,500	Putrajaya	: 7,000
Dungun	: 7,000	Ipoh	: 4,000
		Jeli	: 6,000

The table below shows the transportation cost per unit (in RM) from all branches to agents:
Jadual di bawah menunjukkan kos pengangkutan seunit dari setiap cawangan kepada agen-agen:

To / Ke From / Dari	Muar	Putrajaya	Ipoh	Jeli
Senawang	3	2	5	7
Kulim	7	8	3	6
Dungun	9	7	5	4

Based on the information given:

Berdasarkan maklumat diberikan:

CLO 2
C1

- a. Draw a matrix table.

Lukiskan jadual matriks.

[5 marks]

[5 markah]

CLO 2
C2

- b. Transportation cost by using Least Cost Method

Kos pengangkutan menggunakan Kaedah Kos Minima.

[5 marks]

[5 markah]

CLO 2
C3

- c. An optimal cost by using the Stepping Stone Method.

Kos pengangkutan paling optima menggunakan Kaedah Batu Loncatan.

[15 marks]

[15 markah]

SOALAN TAMAT

FORMULA BUSINESS MATHEMATIC

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

$$P = pQ - VCQ - FC$$

$$P = TR - TC$$

$$TC = VCQ + FC$$

$$TR = pQ$$

$$TVC = VCQ$$

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

$$BEP(RM) = BEP(Q) \times p$$

$$CM = p - VC$$

$$CMR = \frac{p - VC}{p} \times 100$$

$$\frac{dy}{dx} = nx^{n-1}$$

$$\frac{dy}{dx} = nx^{n-1} + 0$$

$$\frac{dy}{dx} = anx^{n-1}$$

$$\frac{dy}{dx} = anx^{n-1} + bmx^{m-1}$$

$$\frac{dy}{dx} = u \frac{dv}{dx} + v \frac{du}{dx}$$

$$\frac{dy}{dx} = \frac{v \frac{du}{dx} - u \frac{dv}{dx}}{v^2}$$

$$\frac{dy}{dx} = \frac{dy}{du} \times \frac{du}{dx}$$

$$I = Prt$$

$$I = IP - CP$$

$$I = \left(\frac{Pr + Yr}{2} \right) t \quad \text{or} \quad I = Pr \left(\frac{t+1}{2} \right)$$

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

$$DP = \text{Rate} (\%) \times CP$$

$$P = CP - DP + \text{other payments}$$

$$S = P + I$$

$$S = P(1 + rt)$$

$$D = Sdt$$

$$H = S - D$$

$$MP = \frac{S}{n}$$

$$IP = DP + (MP \times n) @ DP + S @ DP + P + I$$

$$R = \frac{\sum n}{\sum N} \times I \quad \text{and} \quad \sum n = \left(\frac{n+1}{2} \right) n, \quad \sum N = \left(\frac{N+1}{2} \right) N$$

$$EP = (n \times MP) - R$$

$$S = P \left(1 + \frac{i}{m} \right)^{n.m}$$

$$P = \frac{S}{\left(1 + \frac{i}{m} \right)^{n.m}}$$

$$P = R \left(\frac{1 - \left(1 + \frac{i}{m} \right)^{-n.m}}{\frac{i}{m}} \right) \quad \text{and} \quad R = \frac{P \left(\frac{i}{m} \right)}{1 - \left(1 + \frac{i}{m} \right)^{-n.m}}$$

$$S = R \left(\frac{\left(1 + \frac{i}{m} \right)^{n.m} - 1}{\frac{i}{m}} \right) \quad \text{and} \quad R = \frac{S \left(\frac{i}{m} \right)}{\left(1 + \frac{i}{m} \right)^{n.m} - 1}$$

$$PP = \frac{IO}{ACF}$$

$$PP = T + \frac{IO - \sum ACF_T}{ACF_{T+1}}$$

$$ARR = \frac{\text{Average ACF} - \text{Dep.}}{IO} \times 100$$

$$NPV = ACF(PVIFA, k\%, n) - IO$$

$$PI = \frac{PV}{IO}$$

