

SULIT



BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK
KEMENTERIAN PENDIDIKAN TINGGI

JABATAN MATEMATIK, SAINS & KOMPUTER

PEPERIKSAAN AKHIR
SESI JUN 2015

PBM1024: ADVANCED MATHEMATICS 1

TARIKH : 26 OKTOBER 2015
MASA : 2.30 PM - 4.30 PM (2 JAM)

Kertas ini mengandungi **Lapan (8)** halaman bercetak.
Struktur (4 soalan)
Dokumen sokongan yang disertakan : Formula

JANGAN BUKA KERTAS SOALANINI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT



STRUCTURE [100 MARKS]**INSTRUCTION:**

This section consists of **FOUR [4]** structured questions. Answer **ALL** questions.

ARAHAN:

Bahagian ini mengandungi EMPAT [4] soalan berstruktur. Jawab SEMUA soalan.

QUESTION 1**SOALAN 1**CLO1
C1

(a) Simplify :

Permudahkan :

i. $7^2 \times 7^n$

[1 mark]

[1 markah]

ii. $m^3 \div m^2$

[1 mark]

[1 markah]

iii. $(3^2)^{\frac{1}{2}}$

[1 mark]

[1 markah]

iv. $(4\sqrt{x^6})^2$

[3 marks]

[3 markah]

CLO1 (b) Find the value of x for the following equations :

C2 Cari nilai x bagi persamaan berikut :

i. $6^x = 1$

[2 marks]

[2 markah]

ii. $4^{x+1} = 7$

[4 marks]

[4 markah]

iii. $2^{2-x} = 8^{x-1}$

[4 marks]

[4 markah]

iv. $\left(\frac{1}{125}\right)^{3x} = 25$

[4 marks]

[4 markah]

CLO1 (c) Given $\log_x 2 = m$ and $\log_x 3 = n$, express $\log_{18} 48$ in terms of m and n.

C3 Diberi $\log_x 2 = m$ dan $\log_x 3 = n$, nyatakan $\log_{18} 48$ dalam ungkapan m dan n.

[5 marks]

[5 markah]

QUESTION 2**SOALAN 2**CLO1
C1

- (a) Complete the frequency distribution table of Taman Camelia residents' age as shown below

Lengkapkan jadual kekerapan umur bagi penduduk di Taman Camelia dibawah

Class Interval	Frequency	Class Boundaries	Midpoint	Cumulative Frequency
2-11	9			
12 - 21	11			
22 - 31	4			
32 - 41	9			
42 - 51	5			
52 - 61	7			
62 - 71	3			
72 - 81	2			

Table 2(a): Taman Camelia residents' age
Jadual 2(a): Umur bagi penduduk Taman Camelia

[6 marks]

[6 markah]

CLO1
C2

- (b) Based on Table 2(a) above, draw

Berdasarkan Jadual 2(a) diatas, bina

- i) A histogram

[7 marks]

Histogram

[7 markah]

- ii) A less than Ogive

[7 marks]

Ogif "kurang daripada"

[7 markah]

CLO1
C3

(c) Calculate the mean and median for ungrouped data below

Kirakan min dan median bagi data tak terkumpul dibawah.

11, 14, 3, 21, 17, 16, 19, 16, 5, 7, 19, 8, 19, 4

[5 marks]

[5 markah]

QUESTION 3

SOALAN 3

CLO1
C1

- (a) The following set of data shows the length of 50 leaves taken from plants of a certain species, measured in nearest millimeters.

Set data berikut menunjukkan panjang bagi 50 helai daun yang diambil dari tumbuh-tumbuhan daripada spesies tertentu, diukur dalam millimeter terdekat.

Lengths [mm] <i>Panjang [mm]</i>	Frequency [f] <i>Kekerapan [f]</i>	Mid-point [x] <i>Titik tengah [x]</i>	fx
26 – 30	4		
31 – 35	10		
36 – 40	12		
41 – 45	18		
46 – 50	6		

Table 3(a)

Jadual 3(a)

- Complete the table above. [4 marks]
Lengkapkan jadual di atas. [4 markah]
- Calculate the mean. [2 marks]
Kirakan min. [2 markah]

CLO1
C2

- (b) Table 3(b) shows the length of 40 pieces of wire used in a physics laboratory. Lengths have been measured to the nearest milimeter.
Jadual 3(b) menunjukkan panjang bagi 40 keping wayar yang digunakan dalam makmal fizik. Panjang telah diukur kepada milimeter terdekat.

Lengths [mm] <i>Panjang [mm]</i>	Frequency [f] <i>Kekerapan [f]</i>
25 – 29	2
30 – 34	4
35 – 39	7
40 – 44	10
45 – 49	8
50 – 54	6
55 – 59	3

Table 3(b)

Jadual 3.(b)

- i. Calculate the mean. [6 marks]
Kirakan min. [6 markah]
- ii. Draw a “less than” ogive to represent the data. [8 marks]
Lukiskan graf ogive “kurang daripada” untuk mewakili data. [8 markah]
- iii. From the graph, estimate the median of the data. [3 marks]
Daripada graf, anggarkan median bagi data. [3 markah]
- iv. Calculate the mode by using formula. [2 marks]
Kirakan mod dengan menggunakan formula. [2 markah]

QUESTION 4**SOALAN 4**CLO 2
C1

- (a) Find the mean deviation of 3, 5, 7, 9, 4, 2.

[6 marks]

*Kirakan sisihan min bagi 3, 5, 7, 9, 4, 2.**[6 markah]*CLO 2
C2

- (b) Calculate the mean deviation and standard deviation for table 4(b).

Kirakan sisihan min dan sisihan piawai bagi jadual 4(b).

Class	3	6	9	12	15
Frequency	1	2	4	2	1

Table 4(b)
Jadual 4(b)

[14 marks]

*[14 markah]*CLO2
C3

- (c) Find standard deviation of the following data.

4, 2, 3, 1, 8

[5 marks]

*[5 markah]***SOALAN TAMAT**

<u>INDICES AND LOGARITHM</u>	<u>STATISTIK</u>
<u>BASIC OF INDEX AND LOGARITHM</u>	1. Mean
1. $y = a^x \Leftrightarrow x = \log_a y$	$\bar{x} = \frac{\sum x}{N} = \frac{\sum f\bar{x}}{\sum f}$
<u>Rules of Index</u>	2. Median = $L + \left[\frac{\frac{N}{2} - F}{f_m} \right] c$
1. $a^m \times a^n = a^{m+n}$	3. Mode = $L + \left[\frac{d_1}{d_1 + d_2} \right] c$
2. $\frac{a^m}{a^n} = a^{m-n}$	4. Mean Deviation
3. $(a^m)^n = a^{mn}$	$E = \frac{\sum x - \bar{x} }{n}$
4. $(ab)^n = a^n b^n$	$E = \frac{\sum x - \bar{x} f}{n}$
<u>Rules of Logarithm</u>	5. Variance
1. $\log_a MN = \log_a M + \log_a N$	$s^2 = \frac{\sum (x - \bar{x})^2}{n}$
2. $\log_a \frac{M}{N} = \log_a M - \log_a N$	$s^2 = \frac{\sum x^2}{n} - (\bar{x})^2$
3. $\log_a N^p = p \log_a N$	$s^2 = \frac{\sum (x - \bar{x})^2 f}{n}$
4. $\log_a N = \frac{\log_e N}{\log_e a}$	$s^2 = \frac{\sum f\bar{x}^2}{\sum f} - \left[\frac{\sum f\bar{x}}{\sum f} \right]^2$

