

SULIT



BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK
KEMENTERIAN PENDIDIKAN TINGGI

PRA DIPLOMA

PEPERIKSAAN AKHIR
SESI JUN 2017

PBM1024 : ADVANCED MATHEMATICS 1

TARIKH : 25 OKTOBER 2017
MASA : 2.30 PETANG - 4.30 PETANG (2 JAM)

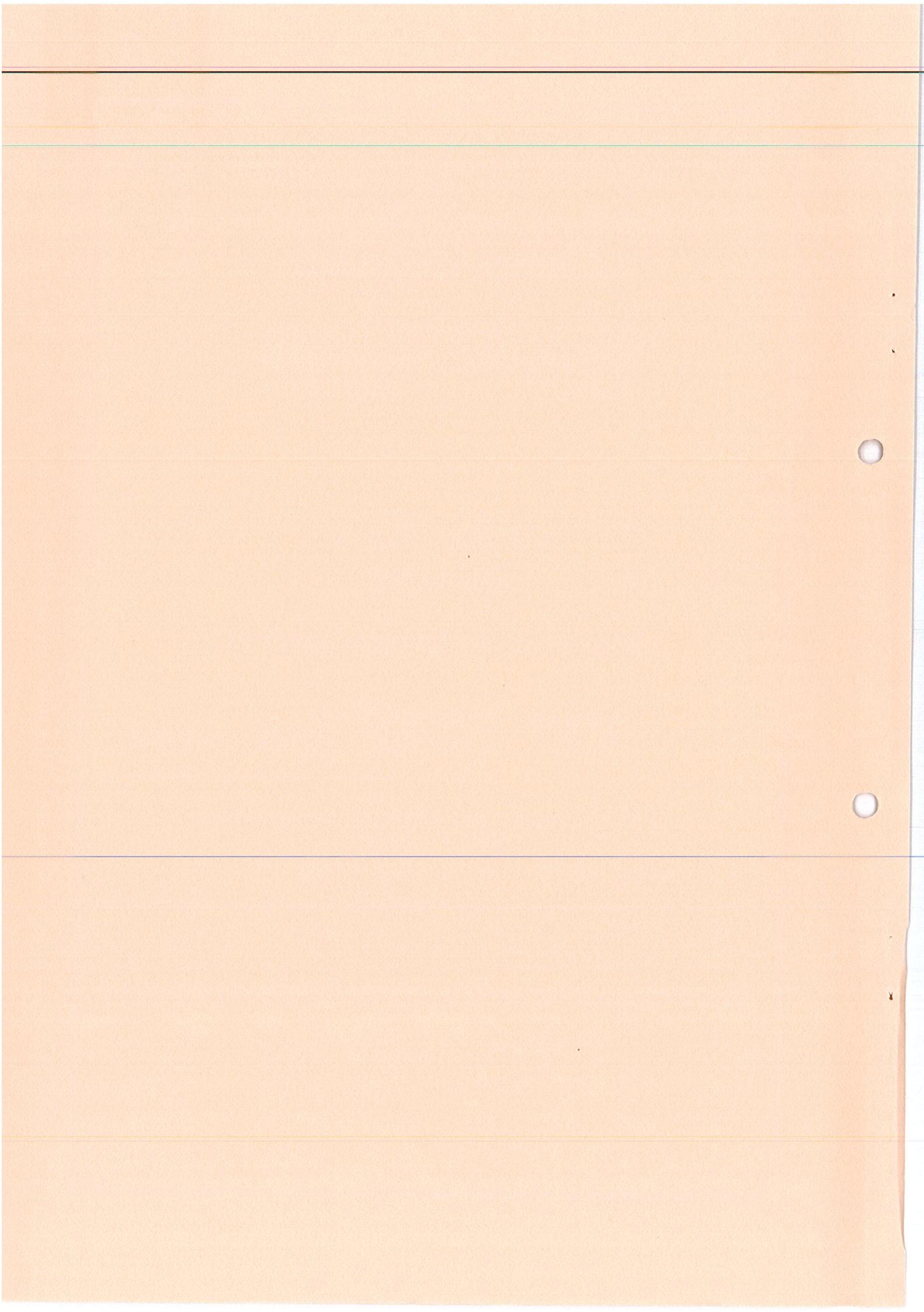
Kertas ini mengandungi **LAPAN (8)** halaman bercetak.
Struktur (4 soalan)

Dokumen sokongan yang disertakan : Kertas Graf, Formula

JANGAN BUKA KERTAS SOALANINI 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 berstruktur. Jawab **SEMUA** soalan.

QUESTION 1**SOALAN 1**

CLO1 C1 (a) Find the value for each of the following:

Cari nilai bagi setiap yang berikut:

i. $(a + b)^0$

[2 marks]

[2 markah]

ii. $64^{\frac{1}{3}}$

[2 marks]

[2 markah]

iii. $5^{-3} \times 5^4$

[2 marks]

[2 markah]

CLO1
C2

(b) Simplify each of the following:

Permudahkan setiap yang berikut:

i. $\sqrt{a^2} \times a^5$

[3 marks]

[3 markah]

ii. $8^{\frac{k}{3}} \times 2^{-4k}$

[3 marks]

[3 markah]

iii.
$$\frac{(a^2)^4 \times b^2}{(a^2 b)^{-1}}$$

[4 marks]

[4 markah]

iv. $\log_2 x - \log_2 y + 2 \log_2 x$

[4 marks]

[4 markah]

CLO1
C3(c) Given that $\log_2 3 = 1.585$ and $\log_2 5 = 2.322$, find the value of :*Diberi $\log_2 3 = 1.585$ dan $\log_2 5 = 2.322$, dapatkan nilai bagi :*

i. $\log_2 9$

[2 marks]

[2 markah]

ii. $\log_2 7.5$

[3 marks]

[3 markah]

QUESTION 2**SOALAN 2**CLO1
C1

- (a) Complete the frequency distribution table below which shows the duration spent by 50 Internet subscribers on the Internet.

Lengkapkan jadual kekerapan di bawah yang menunjukkan tempoh masa yang digunakan oleh 50 pelanggan Internet.

Class Interval/ <i>Selang Kelas</i>	Frequency/ <i>Kekerapan</i>	Class boundries/ <i>Sempadan Kelas</i>	Midpoint/ <i>Titik Tengah</i>	Cumulative Frequency/ <i>Frekuensi Kumulatif</i>
7-18	6	6.5-18.5	12.5	
19-30	10	18.5-30.5	24.5	
31-42	13		36.5	
	8	42.5-54.5	48.5	
55-66	5	54.5-66.5		
67-78			72.5	
79-90	2	78.5-90.5	84.5	

Table 2(a) / Jadual 2(a)

[6 marks]

[6 markah]

CLO1
C2

- (b) Based on Table 2(a) above, draw:
Berdasarkan Jadual 2(a) di atas, lukis:
- A histogram using a suitable scale.
Histogram menggunakan skala yang sesuai.

[7 marks]

[7 markah]

- ii. An ogive using a suitable scale.
Ogif menggunakan skala yang sesuai.

[7 marks]

[7 markah]

CLO1
C3

- (c) Given a set of data 500, 840, 470, 480, 420, m, and 440. Find the value of m if the mean of the data is 513.

Diberi beberapa set data 500, 840, 470, 480, 420, m, dan 440. Cari nilai m jika min data ialah 513.

[5 marks]

[5 markah]

QUESTION 3**SOALAN 3**CLO1
C1

- (a) Table 3(a) below shows the list of height (in inches) of 16 students in a Physical Education class. Calculate the value of mean.

Jadual 3(a) di bawah menunjukkan ketinggian (dalam inci) 16 orang pelajar dalam kelas Pendidikan Jasmani. Kirakan nilai min.

Height (in inches)/ <i>Ketinggian (dalam inci)</i>	No of Students/ <i>Bilangan Pelajar</i>
60-62	3
63-65	4
66-68	7
69-71	2

Table 3 (a) / Jadual 3 (a)

[6 marks]

[6 markah]

CLO1
C2

- (b) The list of the employees' age at MZ Sdn. Bhd. is as follows:
Umur pekerja di syarikat MZ Sdn. Bhd. adalah seperti berikut:

Age/ <i>Umur</i>	No of Workers/ <i>Bilangan Pekerja</i>
20-25	5
26-30	14
31-35	17
36-40	21
41-45	15
46-50	16
51-55	12

Table 3 (b) / Jadual 3 (b)

CLO1
C1

Find the value of:

Dapatkan nilai:

i. Mean

Min

[5 marks]

[5 markah]

ii. Median Class

Kelas Median

[3 marks]

[3 markah]

iii. Median

Median

[5 marks]

[5 markah]

iv. Mode Class

Kelas Mod

[1 marks]

[1 markah]

v. Mode

Mod

[5 marks]

[5 markah]

QUESTION 4**SOALAN 4**

CLO 2

C1

- (a) Determine the mean deviation based on the ungrouped data below.

Tentukan nilai sisihan min berdasarkan data-data tidak terkumpul di bawah.

12 6 15 3 12 6 21 15 18 12

[6 marks]

[6 markah]

- (b) Table 4 (b) shows the marks obtained by 50 trainees in a qualifying test to gain entry to a teacher's training centre.

Jadual 4(b) menunjukkan markah-markah yang diperolehi oleh 50 pelatih dalam ujian kelayakan untuk memasuki pusat latihan guru.

Marks Markah	Number of trainee Bilangan Pelatih
60 - 69	8
70 - 79	20
80 - 89	16
90 - 99	6

Table 4(b) / Jadual 4(b)

Calculate:

Kirakan:

CLO 2

C2

- i) Mean Deviation

Sisihan Min

[14 marks]

[14 markah]

CLO 2

C3

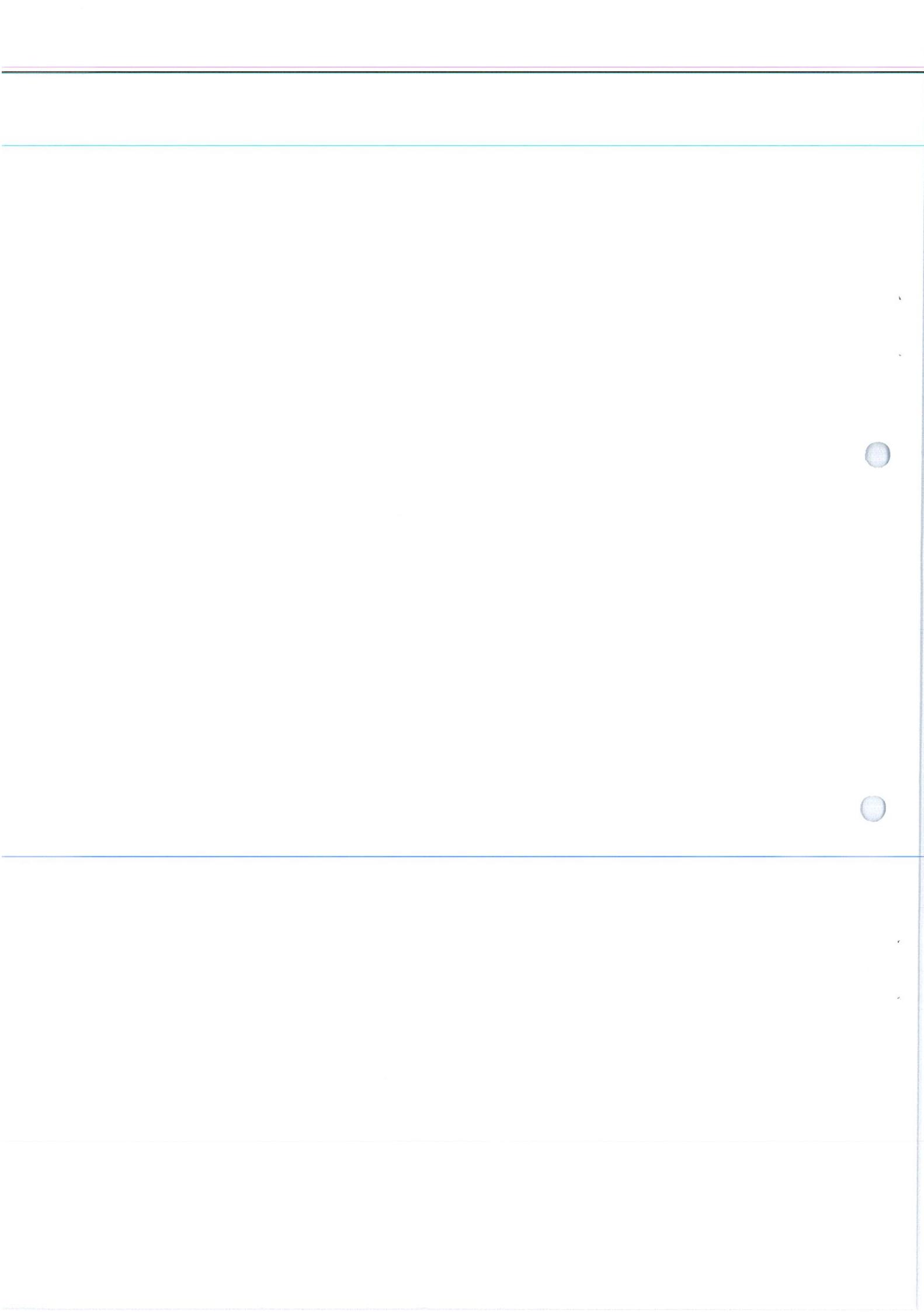
- ii) Variance

Variance

[5 marks]

[5 markah]

SOALAN TAMAT



FORMULA

<u>INDICES AND LOGARITHM</u>	<u>STATISTIK</u>
<p><u>Basic of Index and Logarithm</u></p> <p>1. $y = a^x \leftrightarrow x = \log_a y$</p> <p><u>Rules of Index</u></p> <p>1. $a^m \times a^n = a^{m+n}$ 5. $\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}, b \neq 0$</p> <p>2. $\frac{a^m}{a^n} = a^{m-n}$ 6. $a^{-n} = \frac{1}{a^n}, a \neq 0$</p> <p>3. $(a^m)^n = a^{mn}$ 7. $a^{\frac{m}{n}} = \sqrt[n]{a^m}$</p> <p>4. $(ab)^n = a^n b^n$</p> <p><u>Rules of Logarithm</u></p> <p>1. $\log_a MN = \log_a M + \log_a N$</p> <p>2. $\log_a \frac{M}{N} = \log_a M - \log_a N$</p> <p>3. $\log_a N^P = P \log_a N$</p> <p>4. $\log_a N = \frac{\log_c N}{\log_c a}$</p>	<p>1. Mean $\bar{x} = \frac{\sum x}{N} = \frac{\sum f x}{\sum f}$</p> <p>2. Median = $M_e = L + \left(\frac{\frac{n}{2} - F}{f_m} \right) c$</p> <p>3. Mode = $M_o = L + \left(\frac{d_1}{d_1 + d_2} \right) c$</p> <p>4. Mean Deviation $E = \frac{\sum x - \bar{x} }{n}$</p> <p>$E = \frac{\sum x - \bar{x} f}{\sum f}$</p> <p>5. Variance $s^2 = \frac{\sum (x - \bar{x})^2}{n}$</p> <p>$s^2 = \frac{\sum x^2}{n} - (\bar{x})^2$</p> <p>$s^2 = \frac{\sum (x - \bar{x})^2 f}{\sum f}$</p> <p>$s^2 = \frac{\sum f x^2}{\sum f} - \left[\frac{\sum f x}{\sum f} \right]^2$</p> <p>6. Standard Deviation $s = \sqrt{s^2}$</p>

