Jawapan

Praktis Formatif

1 $n = 18$

Median $= \dfrac{x_9 + x_{10}}{2}$

$= \dfrac{2 + 3}{2}$

$= 2.5$

Jawapan/*Answer*: **C**

2 (a) 6   (b) 8   (c) 2, 7

3 (a) ✓   (b) ✗

4 (a) Min/*Mean* $= \dfrac{24 + 21 + 27 + 24 + 19}{5}$

$= \dfrac{115}{5}$

$= 23$

(b) Min/*Mean* $= \dfrac{20 + 28 + 25 + 15 + 20 + 18}{6}$

$= \dfrac{126}{6}$

$= 21$

(c) Min/*Mean* $= \dfrac{23 + 12 + 32 + 30 + 10 + 7 + 25 + 21}{8}$

$= \dfrac{160}{8}$

$= 20$

5 $\dfrac{4 + 6 + 24 + 8 + 15}{20} = \dfrac{57}{20}$

$= \text{RM2.85}$

6 (a) 9, 13, 17, 18, 20, 21, 25, 25

$n = 8$

Median $= \dfrac{x_4 + x_5}{2}$

$= \dfrac{18 + 20}{2}$

$= 19$

(b) 7, 10, 13, 14, 16, 19, 19, 20, 24

$n = 9$

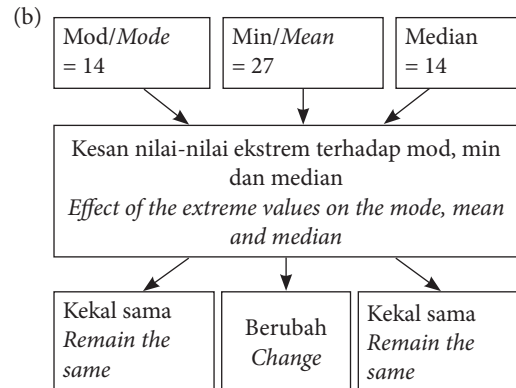Median $= x_5$

$= 16$

7 (a) $n = 23$

Median $= x_{12}$

$= 13$ mm

(b) $n = 18$

Median $= \dfrac{x_9 + x_{10}}{2}$

$= \dfrac{22 + 23}{2}$

$= 22.5$ g

8 (a) 7, 10, 12, 12, 14, 14, 14, 16, 18

(i) Mod/*Mode* = 14

(ii) Median = 14

(iii) Min/*Mean*

$= \dfrac{7 + 10 + 12 + 12 + 14 + 14 + 14 + 16 + 18}{9}$

$= \dfrac{117}{9}$

$= 13$

(b)

Mod/*Mode* = 14	Min/*Mean* = 27	Median = 14

Kesan nilai-nilai ekstrem terhadap mod, min dan median
Effect of the extreme values on the mode, mean and median

Kekal sama *Remain the same*	Berubah *Change*	Kekal sama *Remain the same*

9 (a)

	Mod *Mode*	Min *Mean*	Median *Median*
Data I	9	9.6	9
Data II	19	19.6	19
Data III	18	19.2	18
Data IV	3	3.2	3

(b)

Tambah 10 kepada setiap data.
Add 10 to each data. → Data II

Darab 2 kepada setiap data.
Multiply 2 to each data. → Perubahan data I *Change of data I* → Data III

Bahagi 3 kepada setiap data.
Divide by 3 to each data. → Data IV
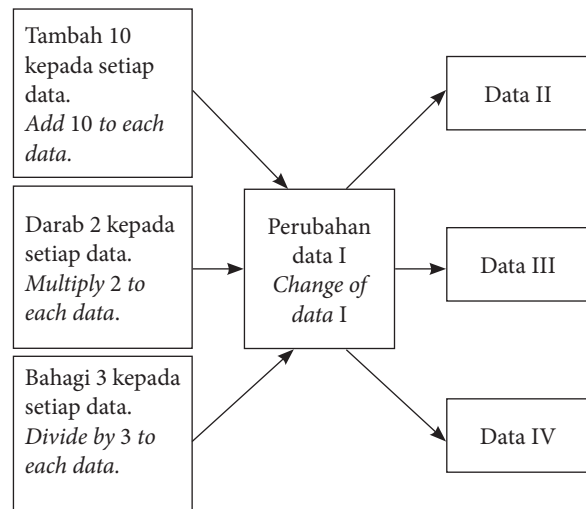
(c) (i) Mod data II = Mod data I + 10
Mode of data II = *Mode of data* I + 10
Min data II = Min data I + 10
Mean of data II = *Mean of data* I + 10
Median data II = Median data I + 10
Median of data II = *Median of data* I + 10

(ii) Mod data III = Mod data I × 2
Mode of data III = *Mode of data* I × 2
Min data III = Min data I × 2
Mean of data III = *Mean of data* I × 2
Median data III = Median data I × 2
Median of data III = *Median of data* I × 2

(iii) Mod data IV = Mod data I ÷ 3
Mode of data IV = *Mode of data* I ÷ 3
Min data IV = Min data I ÷ 3
Mean of data IV = *Mean of data* I ÷ 3
Median data IV = Median data I ÷ 3
Median of data IV = *Median of data* I ÷ 3

10

Umur (tahun) *Age* (*year*)	Gundalan *Tally*	Kekerapan *Frequency*
1 – 2	卌	5
3 – 4	‖	2
5 – 6	卌 ‖	7
7 – 8	‖‖	4
9 – 10	‖‖	4
11 – 12	‖‖	3

11 (a) $2 + x + 8 + 5 + 10 + 6 = 35$
$x + 31 = 35$
$x = 4$

(b) Bilangan bandar dengan suhu dari 8°C hingga 15°C
Number of towns with temperatures from 8°C *to* 15°C
$= 8 + 5$
$= 13$

(c) Julat suhu bandar-bandar dengan kekerapan
tertinggi = (16 – 19)°C
Range of temperature of towns with the highest
frequency = (16 – 19)°C

12 (a) 21 – 30
(b) 70 – 89

13 (a)

Bil bulanan air (RM) *Monthly water bill* (RM)	Kekerapan *Frequency*	Titik tengah kelas *Midpoint class*	Kekerapan × Titik tengah kelas *Frequency × Midpoint class*
1 – 5	10	3	30
6 – 10	25	8	200
11 – 15	30	13	390
16 – 20	15	18	270
21 – 25	20	23	460
	Jumlah *Total*		1 350

(b) Min bil bulanan air $= \text{RM}\dfrac{1\,350}{100}$
Mean monthly water bill
$= \text{RM}13.50$

14 (a) (i) Mod/*Mode*
(ii) Data kategori/*Categorical data*
(b) (i) Mod/*Mode*
(ii) Data kategori/*Categorical data*
(c) (i) Median
(ii) Data berangka yang ada nilai ekstrem.
Numerical data with extreme value.
(d) (i) Min/*Mean*
(ii) Data berangka yang tidak ada nilai ekstrem.
Numerical data without extreme value.

15 (a) $x + 30° + 90° + 110° = 360°$
$x + 230° = 360°$
$x = 130°$ [✗]

(b) *WhatsApp* mempunyai sudut sektor yang terbesar.
∴ Mod ialah *WhatsApp*.
WhatsApp has the largest angle of sector.
∴ *Mode is WhatsApp.* [✓]

16 (a) Mod/*Mode* = 4

(b) Min/*Mean* $= \dfrac{8 + 4 + 8 + 16 + 12 + 4 + 4}{7}$
$= \dfrac{56}{7}$
$= 8$

(c) 4, 4, 4, 8, 8, 12, 16
Median $= x_4$
$= 8$

17 (a) Mod = 26 minit
Mode = 26 *minutes*

(b) Min/*Mean* $= \dfrac{498}{720}$
$= 24.9$ minit/*minutes*

(c) Median $= \dfrac{x_{10} + x_{11}}{2}$
$= \dfrac{23 + 26}{2}$
$= 24.5$ minit/*minutes*

18 (a) (i) Mod/*Mode* = 21

(ii) Median = $\dfrac{19 + 20}{2}$

$= 19.5$

(b) Min umur/*Mean age*

$= \dfrac{\begin{array}{c}2(15) + 3(16) + 5(17) + 2(18) + 3(19) + \\ 5(20) + 6(21) + 3(24) + 1(25)\end{array}}{30}$

$= \dfrac{30 + 48 + 85 + 36 + 57 + 100 + 126 + 72 + 25}{30}$

$= \dfrac{579}{30}$

$= 19.3$

19 (a) Azri: 50, 68, 74, 82, 90

Median = 74

Danesh: 66, 70, 74, 88, 96

Median = 74

Kumar: 55, 72, 74, 95, 98

Median = 74

Ya, Azri, Danesh dan Kumar mencapai markah median yang sama.

Yes, Azri, Danesh and Kumar achieved the same median mark.

(b) Azri: Markah min/*Mean mark*

$= \dfrac{74 + 50 + 82 + 90 + 68}{5}$

$= \dfrac{364}{5}$

$= 72.8$

Danesh: Markah min/*Mean mark*

$= \dfrac{70 + 88 + 74 + 96 + 66}{5}$

$= \dfrac{394}{5}$

$= 78.8$

Kumar: Markah min/*Mean mark*

$= \dfrac{95 + 74 + 55 + 98 + 72}{5}$

$= \dfrac{394}{5}$

$= 78.8$

(c) Markah min Danesh dan Kumar adalah sama tinggi berbanding dengan Azri. Namun, markah Danesh adalah lebih konsisten daripada Kumar. Maka, Danesh, Kumar dan Azri masing-masing layak menerima hadiah pertama, kedua dan ketiga.

The mean marks of Danesh and Kumar are equally high as compared to Azri. However, Danesh's marks are more consistent than Kumar. Hence, Danesh, Kumar and Azri qualify to receive the first, second and third prizes respectively.

Praktis Sumatif

1 36.2, 36.3, 36.4, 36.4, 36.5, 36.6

Mod/*Mode* = 36.4°C

Median = 36.4°C

Min/*Mean* = $\dfrac{36.2 + 36.3 + 36.4 + 36.4 + 36.5 + 36.6}{6}$

$= \dfrac{218.4}{6}$

$= 36.4°C$

Mod = Median = Min

Mode = Median = Mean

Jawapan/*Answer*: **A**

2 $n = 20$

Median $= \dfrac{x_{10} + x_{11}}{2}$

$= \dfrac{39 + 42}{2}$

$= \dfrac{81}{2}$

$= 40.5$

Jawapan/*Answer*: **C**

3 Mod cukai pendapatan tahunan ialah RM500.

The modal annual income tax is RM500.

Jawapan/*Answer*: **A**

4 3, 3, 3, x, x, 9

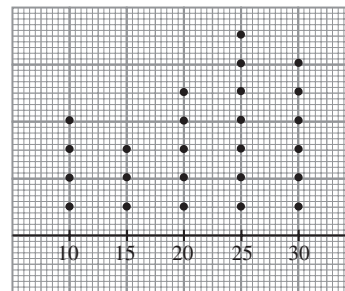$\dfrac{3 + x}{2} = 5$

$3 + x = 10$

$x = 7$

Min/*Mean* $= \dfrac{3 + 3 + 3 + 7 + 7 + 9 + 8 + 12}{8}$

$= \dfrac{52}{8}$

$= 6.5$

Jawapan/*Answer*: **A**

5

Jisim (kg)
Mass (kg)

Min jisim/*Mean mass*

$= \dfrac{4(10) + 3(15) + 5(20) + 7(25) + 6(30)}{25}$

$= \dfrac{40 + 45 + 100 + 175 + 180}{25}$

$= \dfrac{540}{25}$

$= 21.6$ kg

Jawapan/*Answer*: **B**

6

Markah *Mark*	0	1	2	3	4
Bilangan murid *Number of students*	2	5	x	10	7

(a) Mod/*Mode* = 3
   $\therefore x < 10$

(b) $\qquad\qquad$ Min/*Mean* = 2.5

$$\frac{2(0) + 5(1) + x(2) + 10(3) + 7(4)}{2 + 5 + x + 10 + 7} = 2.5$$

$$\frac{5 + 2x + 30 + 28}{x + 24} = 2.5$$

$$\frac{2x + 63}{x + 24} = 2.5$$

$$2x + 63 = 2.5(x + 24)$$

$$2x + 63 = 2.5x + 60$$

$$0.5x = 3$$

$$x = 6$$

(c)

Markah *Mark*	0	1	2	3	4
Bilangan murid *Number of students*	2	5	6	10	7

$n = 30$

Median $= \dfrac{x_{15} + x_{16}}{2}$

$= \dfrac{3 + 3}{2}$

$= 3$

7 (a) Jumlah harga dompet yang dibeli oleh 25 orang pelanggan
   Total price of purses bought by 25 *customers*
   = RM1 530

Min/*Mean* $= \dfrac{RM1\ 530}{25}$

$= RM61.20$

(b)

Harga (RM) *Price* (RM)	Kekerapan *Frequency*
1 – 20	1
21 – 40	6
41 – 60	5
61 – 80	8
81 – 100	2
101 – 120	3

(c) $\sum fx = 1(10.5) + 6(30.5) + 5(50.5) + 8(70.5)$
   $\qquad\quad + 2(90.5) + 3(110.5)$
   $\quad = 10.5 + 183 + 252.5 + 564 + 181 + 331.5$
   $\quad = 1\ 522.5$

Min/*Mean* $= \dfrac{RM1\ 522.5}{25}$

$= RM60.90$

(d) Min dihitung daripada data sebenar adalah jitu manakala min dihitung daripada data terkumpul adalah suatu anggaran.
   Mean calculated from the actual data is accurate whereas mean calculated from the grouped data is an approximation.

8 (a) Mod/*Mode* = RM3 500
   Jumlah bonus yang dibayar
   Total bonus paid
   = RM69 100

Min/*Mean* $= \dfrac{RM69\ 100}{20}$

$= RM3\ 455$

Median $= \dfrac{x_{10} + x_{11}}{2}$

$= \dfrac{3\ 400 + 3\ 500}{2}$

$= RM3\ 450$

(b) Median, ada nilai ekstrem, 9 600.
   Median, has an extreme value, 9 600.

(c) Mod/*Mode* = RM3 500 + RM500
   $\qquad\qquad\ = RM4\ 000$
   Min/*Mean* = RM3 455 + RM500
   $\qquad\qquad\ = RM3\ 955$
   Median = RM3 450 + RM500
   $\qquad\quad\ = RM3\ 950$