Nama : …… **Kelas** : ……..

Matematik
Kertas 1 (1449/1)
September 2024

LOGO
SEKOLAH

SEKOLAH MENENGAH KEBANGSAAN XXXXXXX

UJIAN DIAGNOSTIK 3
MATEMATIK TINGKATAN 5
Kertas 1
1 jam 30 minit

MAKLUMAT UNTUK CALON
INFORMATION FOR CANDIDATES

1. Kertas peperiksaan ini mengandungi **40** soalan.
   This question paper consists of **40** *questions.*

2. Jawab **semua** soalan.
   Answer **all** *questions.*

3. Jawab setiap soalan dengan menghitamkan ruangan yang betul pada kertas jawapan objektif.
   Answer each question by blackening the correct space on the objective answer sheet.

4. Hitamkan **satu** ruangan sahaja bagi setiap soalan.
   Blacken only ***one*** *space for each question.*

5. Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
   The diagrams in the questions provided are not drawn to scale unless stated.

6. Satu senarai rumus disediakan di halaman 2 hingga 4.
   A list of formulae is provided on pages 2 *to* 4.

7. Anda dibenarkan menggunakan kalkulator saintifik.
   You may use a scientific calculator.

14 Isi padu kon = $\frac{1}{3}\pi j^2 t$

Volume of cone = $\frac{1}{3}\pi r^2 h$

15 Isi padu sfera = $\frac{4}{3}\pi j^3$

Volume of sphere = $\frac{4}{3}\pi r^3$

16 Isi padu piramid = $\frac{1}{3}$ × luas tapak × tinggi

Volume of pyramid = $\frac{1}{3}$ × *base area* × *height*

17 Faktor skala, $k = \frac{PA'}{PA}$

Scale factor, $k = \frac{PA'}{PA}$

18 Luas imej = k^2 × luas objek

Area of image = k^2 × *area of object*

STATISTIK DAN KEBARANGKALIAN
STATISTICS AND PROBABILITY

1 Min / *Mean*, $\bar{x} = \frac{\sum x}{N}$

2 Min / *Mean*, $\bar{x} = \frac{\sum fx}{\sum f}$

3 Varians / *Variance*, $\sigma^2 = \frac{\sum(x-\bar{x})^2}{N} = \frac{\sum x^2}{N} - \bar{x}^2$

4 Varians / *Variance*, $\sigma^2 = \frac{\sum f(x-\bar{x})^2}{\sum f} = \frac{\sum fx^2}{\sum f} - \bar{x}^2$

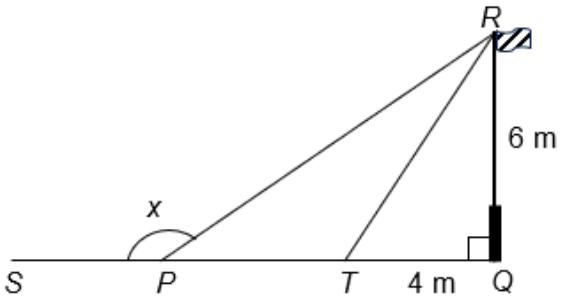
5 Sisihan piawai / *Standard deviation*, $\sigma = \sqrt{\frac{\sum(x-\bar{x})^2}{N}} = \sqrt{\frac{\sum x^2}{N} - \bar{x}^2}$

6 Sisihan piawai / *Standard deviation*, $\sigma = \sqrt{\frac{\sum f(x-\bar{x})^2}{\sum f}} = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2}$

7 $P(A) = \frac{n(A)}{n(S)}$

8 $P(A') = 1 - P(A)$

10 Dalam Rajah 2, *QR* ialah sebatang tiang bendera. *SPTQ* ialah satu garis lurus.
In Diagram 2, QR is a flag pole. SPTQ is a straight line.



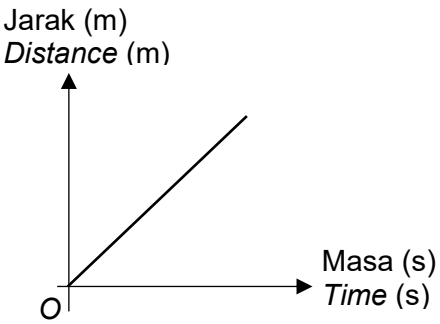
Rajah 2 / *Diagram* 2

Jika *T* ialah titik tengah bagi *PQ*, cari kos *x*.
If T is a midpoint of PQ, find cos x.

A $\frac{3}{4}$ **C** $-\frac{3}{4}$

B $-\frac{3}{5}$ **D** $-\frac{4}{5}$

11 Rajah 3 menunjukkan graf jarak-masa bagi suatu zarah.
Diagram 3 shows the distance-time graph of a particle.



Rajah 3 / *Diagram* 3

Graf menunjukkan bahawa
The graph indicates that

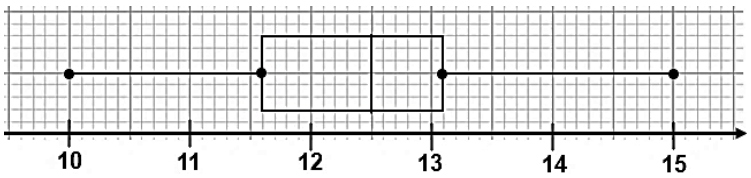
A zarah bergerak dengan laju seragam.
the particle moves at a constant speed.

B zarah berada dalam keadaan pegun.
the particle is stationary.

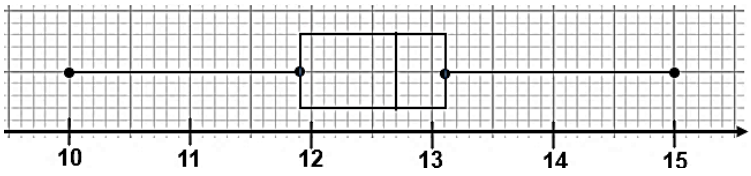
C zarah bergerak dengan kelajuan semakin bertambah.
the particle moves with increasing speed.

D zarah bergerak dengan kelajuan berkurang.
the particle moves with decreasing speed.

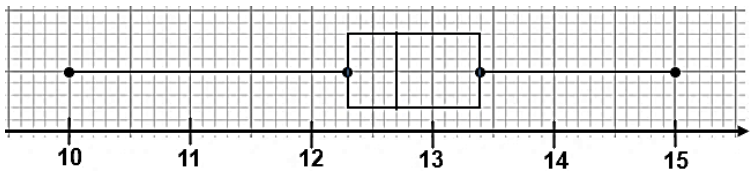
A



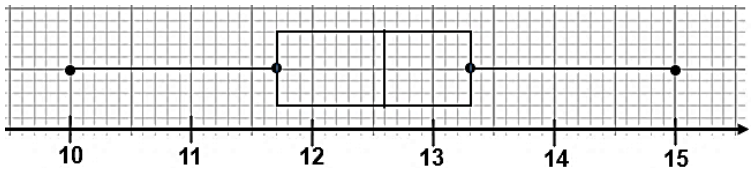
B



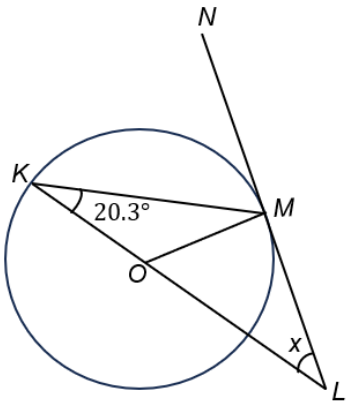
C



D



24 Rajah 11 menunjukkan sebuah bulatan berpusat di *O*. *LMN* ialah tangen kepada bulatan. Diberi $\angle LKM = 20.3°$ dan *KOL* ialah garis lurus.
Diagram 11 *shows a circle centered at O. LMN is tangent to the circle. Given that* $\angle LKM = 20.3°$ *and KOL is a straight line.*



Rajah 11 / *Diagram* 11

Cari nilai *x*.
Find the value of x.

A $49° 24'$
B $59° 42'$
C $49° 42'$
D $59° 24'$

2 (a) Diberi set P = {1, 2, 4, 5} dan set R = {5, 6, 7}. Senaraikan unsur bagi set $(P \cap R)'$.

Given set P = {1, 2, 4, 5} *and set* R = {5, 6, 7}. *List the elements of set* $(P \cap R)'$.

[1 markah / *mark*]

(b) Gambar rajah Venn di ruang jawapan menunjukkan set *J,* set *K* dan set *L* dengan keadaan set semesta, $\xi = J \cup K \cup L$. Lorek set $K' \cap (J \cup L)$ pada rajah tersebut.

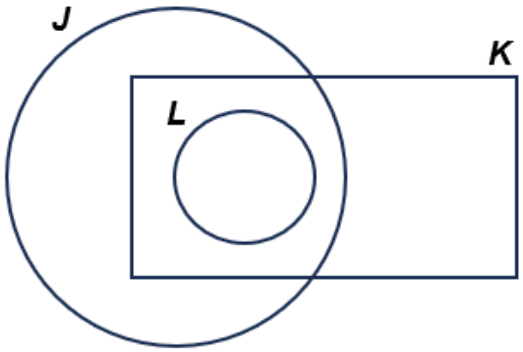
The Venn diagram in the answer space shows set J, set K and set *L where the universal set,* $\xi = J \cup K \cup L$. *Shade set* $K' \cap (J \cup L)$ *on the diagram.*

[2 markah / *marks*]

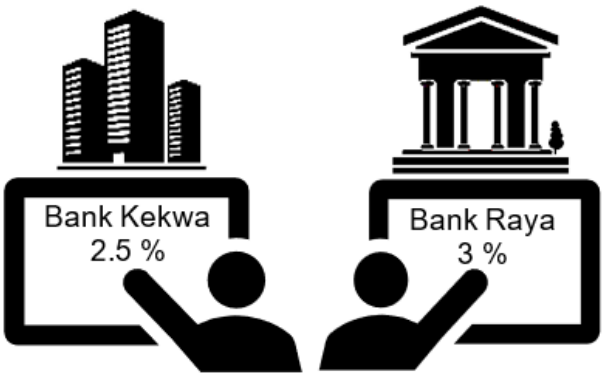
Jawapan / *Answer* :

(a)

(b)



10 Rajah 3 menunjukkan tawaran kadar faedah atas simpanan tetap oleh dua buah bank.
Diagram 3 *shows interest rate offers on fixed deposits by two banks.*



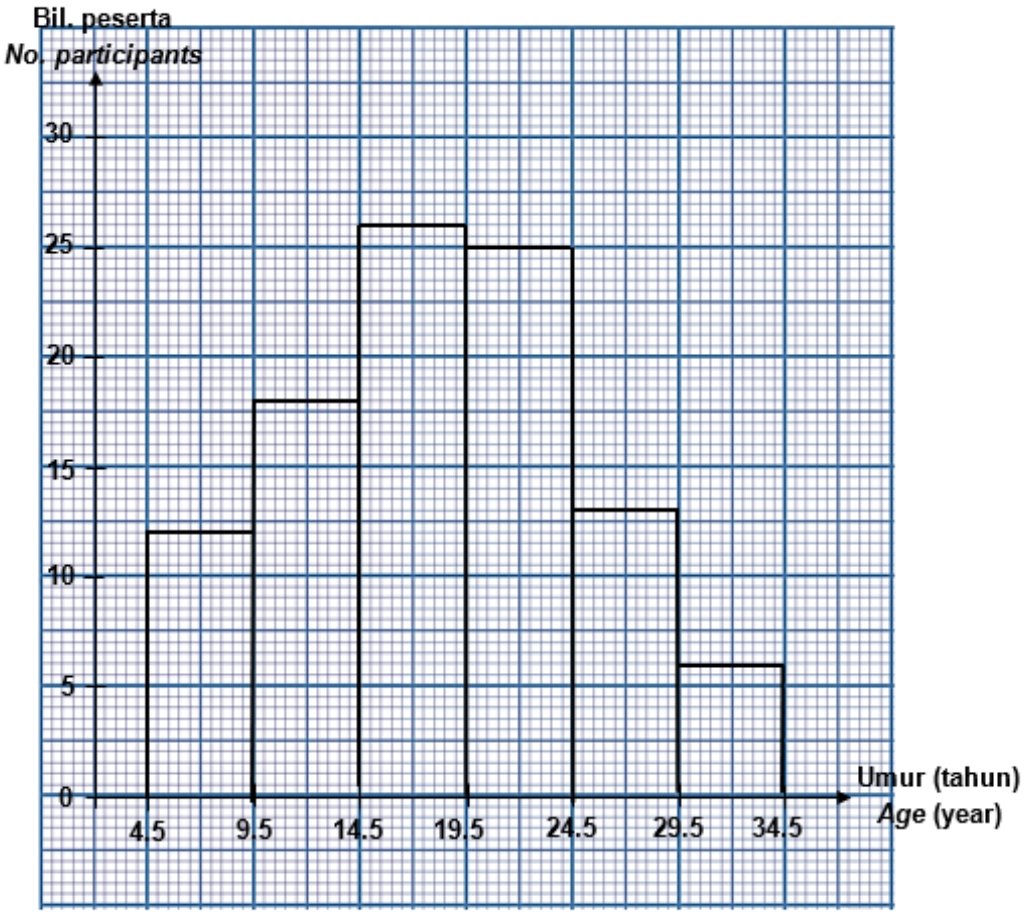
Rajah 3 / *Diagram* 3

Sekiranya Encik Wong ingin menyimpan sebanyak RM35 000 dalam tempoh 7 tahun, bank manakah yang patut Encik Wong pilih? Justifikasikan jawapan anda.
If Encik Wong wants to save RM35 000 *within 7 years, which bank should Encik Wong choose? Justify your answer.*

[3 markah / *marks*]

Jawapan / *Answer* :

14 (a) Rajah 6 ialah sebuah histogram yang menunjukkan umur, dalam tahun, peserta pengakap pada perkhemahan peringkat daerah Alor Gajah.
Diagram 6 *is a histogram shows the age, in years, of scout participants at the Alor Gajah district level camp.*



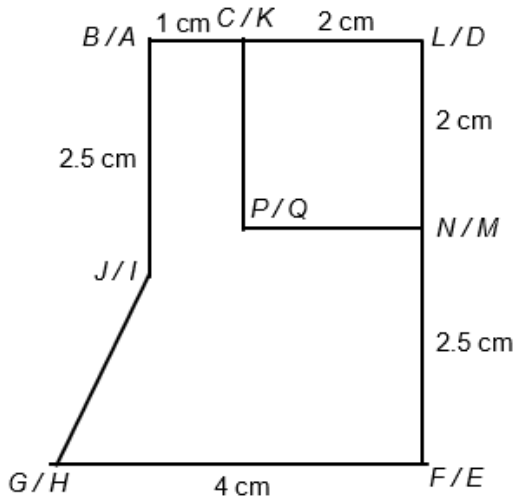
Rajah 6 / *Diagram* 6

(i) Hitung bilangan peserta yang hadir.
Determine the number of participants present.

[2 markah / *marks*]

(ii) Seterusnya, lengkapkan Jadual 2 di ruang jawapan.
Hence, complete Table 2 *in the answer space.*

[3 markah / *marks*]

Soalan		Peraturan Pemarkahan	Markah	
4	(a)	$(\frac{75}{100} \times 1839.50) - (\frac{30}{100} \times 1379.63)$ *atau* setara Nota : $\frac{75}{100} \times 1839.50$ *atau* $\frac{30}{100} \times 1379.63$ *atau* 1379.63 *atau* 413.89, beri 1 markah	2	
		965.74	1	
	(b)	200 000 – 8 000	1	
		192 000	1	**5**
5	(a)			
		Bentuk betul heptagon *BJGFNPC* dan segi empat *CPNL*	1	
		GF > *FN* = *BJ* > *CP* = *NP* = *NL* = *LC* > *BC*	1	
		Ukuran betul ± 0.2 cm dan sudut pada bucu = $90^{O} \pm 1^{O}$	1	
	(b)	2.2 ± 0.1 cm	1	**4**
6		$x + y = 34$ *atau* $3x + y = 82$	1	
		$\begin{pmatrix} 1 & 1 \\ 3 & 1 \end{pmatrix}\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 34 \\ 82 \end{pmatrix}$ *atau* setara	1	
		$\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{1(1)-1(3)}\begin{pmatrix} 1 & -1 \\ -3 & 1 \end{pmatrix}\begin{pmatrix} 34 \\ 82 \end{pmatrix}$ *atau* setara	1	
		$x = 24$	1	
		$y = 10$	1	**5**
		Nota : $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 24 \\ 10 \end{pmatrix}$ sebagai jawapan akhir, beri 1 markah		

Suka sampel ini?

Kertas Trial SPM

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