

**SULIT**



**BAHAGIAN PEPERIKSAAN DAN PENILAIAN  
JABATAN PENDIDIKAN POLITEKNIK  
KEMENTERIAN PENDIDIKAN TINGGI**

**JABATAN KEJURUTERAAN MEKANIKAL**

**PEPERIKSAAN AKHIR**

**SESI DISEMBER 2015**

**SBK1012: MATEMATIK**

**TARIKH : 7 APRIL 2016**

**MASA : 8.30 – 10.30 PAGI (2 JAM)**

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Kertas ini mengandungi **SEPULUH (10)** halaman bercetak  
Bahagian A: Struktur (6 soalan). Jawab **EMPAT (4)** soalan sahaja.

Dokumen sokongan yang disertakan : Tiada

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**JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN**

(CLO yang tertera hanya sebagai rujukan)

**SULIT**

**INSTRUCTION:**

This section consists of **SIX (6)** structured questions. Answer **FOUR (4)** question only.

**ARAHAN :**

*Bahagian ini mengandungi ENAM (6) soalan berstruktur. Jawab EMPAT (4) soalan sahaja.*

**QUESTION 1**

CLO1  
C1

- a) Choose **FIVE(5)** basic quantities from list below.  
Pilih **LIMA(5)** kuantiti asas daripada senarai dibawah.

Velocity(*Halaju*), Length(*Panjang*), Acceleration(*pecutan*),  
Mass(*Jisim*), Time(*Masa*), Density(*Ketumpatan*),  
Temperature(*Suhu*), Electric Current(*Arus elektrik*),  
Stress(*Tegasan*), Force(*Daya*), Voltage(*Voltan*).

( 5 marks)

CLO1  
C2

- b) List **THREE(3)** of derive quantities with the correct unit.  
*Senaraikan TIGA(3) kuantiti asas dan berikan unit yang betul.*

( 6 marks)

CLO1  
C3

- c) Convert the following units  
*Tukarkan unit-unit berikut:*

i)  $5 \text{ km}^2$  to  $\text{m}^2$

*5 km<sup>2</sup> kepada m<sup>2</sup>*

ii) 6.2 cm to m

*6.2 cm kepada m*

iii)  $7.2 \text{ kmh}^{-1}$  to  $\text{ms}^{-1}$

*7.2 kmj<sup>-1</sup> kepada ms<sup>-1</sup>*

( 7 marks )

CLO1  
C3

- d) Convert the following frequency to Hz unit.

*Tukarkan frekuensi berikut kepada unit Hz.*

i. 62.8 MHz

ii. 72.5 GHz

iii. 32.4 kHz

iv. 100 mHz

v. 222 cHz

vi. 9999  $\mu\text{Hz}$

vii. 0.09 THz

( 7 marks )

## QUESTION 2

CLO1  
C1

- a) State the following value in standard form.  
*Nyatakan nilai berikut dalam bentuk piawai*

- i. 0.000070
- ii. 45.60
- iii. 10006.06
- iv. 0.12222
- v. 25678.52
- vi. 0.0412
- vii. 624.55

(7 marks)

CLO1  
C2

- b) Give proper adjustment to the following sizes

*Berikan imbuhan yang betul kepada ukuran berikut.*

- i. 700 m
- ii. 805.5 s
- iii. 0.35 Hz
- iv. 0.00025 g
- v. 9008.9 F
- vi. 4580 A
- vii. 200000 m
- viii. 0.000000882 s

(8 marks)

CLO1  
C3

- c) The times taken for a car to move from point P to Q is 5 minutes. The distance from P to Q is 100m. The car using an unleaded petrol for  $1005.5 \text{ cm}^3$  and carried 200 kg of load. The car velocity is  $20 \text{ ms}^{-1}$ . From the text, identify the basic quantities and derived quantities.

*Masa yang diambil oleh sebuah kereta untuk bergerak dari titik P ke Q ialah 5 minit. Jarak dari P ke Q ialah 100 m. Kereta tersebut menggunakan petrol tanpa plumbum sebanyak  $100.5 \text{ cm}^3$  dan membawa 200 kg beban. halaju kereta ialah  $20 \text{ ms}^{-1}$ . Daripada teks, kenalpastikan kuantiti asas dan kuantiti terbitan.*

(10 marks)

## QUESTION 3

CLO1  
C1

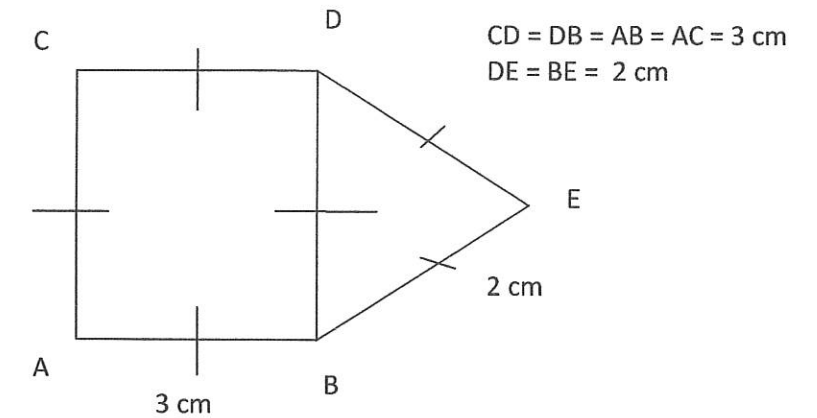
- a) Give the definition for perimeter and area and volume.  
*Berikan definisi bagi perimeter luas dan isipadu.*

(6 marks)

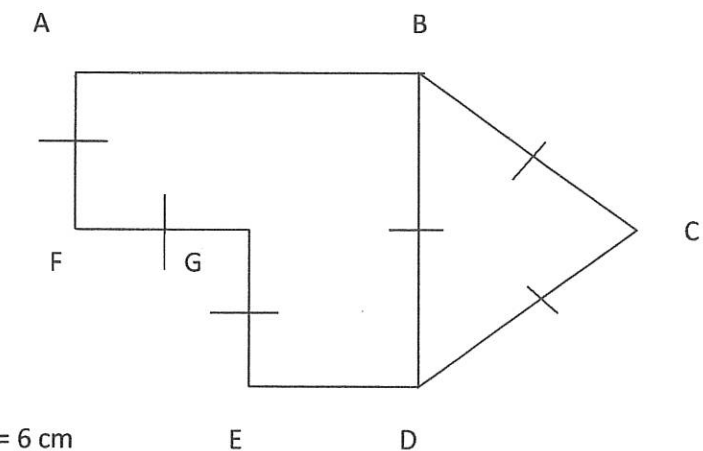
CLO1  
C2

- b) Find the perimeter for the figure below.  
*Cari perimeter bagi gambarajah dibawah.*

i)



ii)

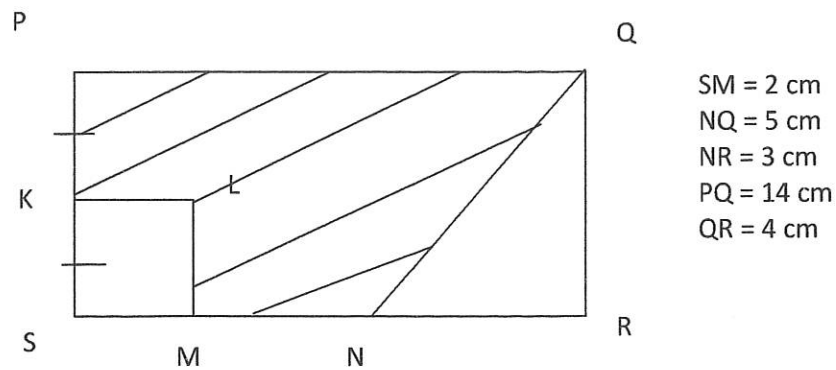


AF = FG = GE = 6 cm  
BC = DC = BD = 2AF  
ED = 8 cm

(10 marks)

CLO1  
C3

- c) From the diagram below, PQRS is a rectangle and KLMS is a square. Find the perimeter, in cm, of the shaded region.  
*Dalam rajah PQRS ialah sebuah segiempat tepat dan KLMS ialah sebuah segiempat sama. Cari perimeter dalam cm bagi kawasan berlorek.*



(10 marks)

QUESTION 4

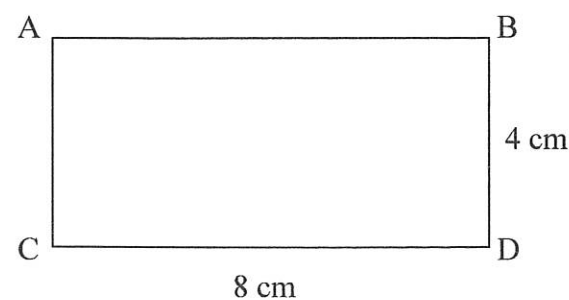
CLO1  
C1

- a) Give the area formula for the following shape :  
*Berikan formula luas bagi bentuk berikut :*
- i. Circle  
*bulatan*
  - ii. Rectangle  
*segiempat*
  - iii. Triangles  
*Segitiga*

( 6 marks )

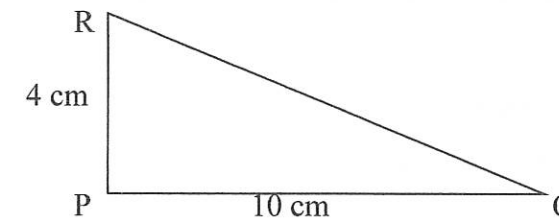
CLO1  
C2

- b) i. Calculate the area of the rectangle ABCD  
*Kirakan luas segiempat tepat ABCD*



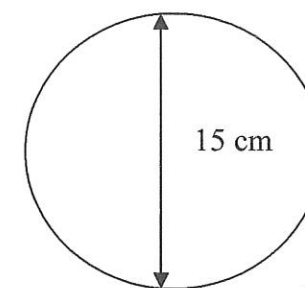
( 3 marks )

- ii. Find the area of the right angled triangle PQR.  
*Cari luas sigitiga bersudut tegak PQR.*



( 3 marks )

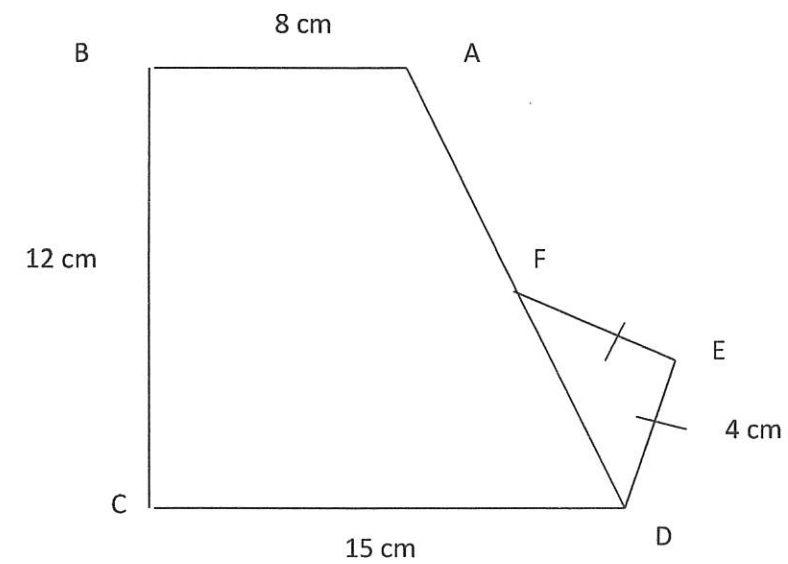
- iii. Find the area of the circle PQR.  
*Cari luas bagi bulatan PQR*



( 3 marks )

CLO1  
C3

- c) Find the area of figure ABCDEF.  
*Cari luas bentuk ABCDEF.*



(10 marks)

QUESTION 5

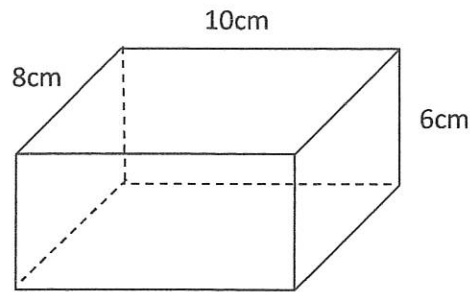
Give your answers correct to 2 decimal places. Betulkan sehingga 2 tempat perpuluhan.

CLO1  
C1

a) Calculate the volume for the following figure. ( $\pi = 3.14$ )

Kirakan isipadu bagi rajah di bawah.

i.



Formula:

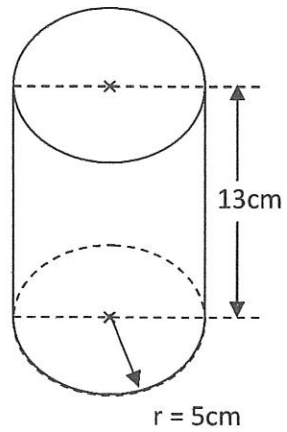
$$\text{volume} = \text{base} \times \text{length} \times \text{height}$$

Formula:

$$\text{isipadu} = \text{panjang} \times \text{lebar} \times \text{tinggi}$$

(2 marks)

ii.

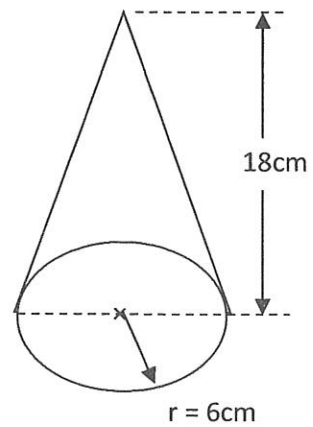


Formula:

$$\text{volume} = \pi r^2 h$$

(2 marks)

iii.



Formula:

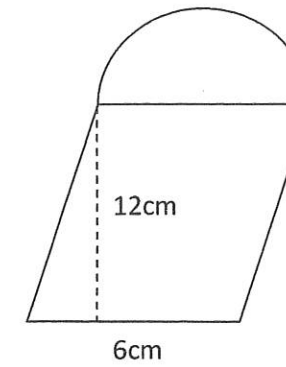
$$\text{volume} = \frac{1}{3} \pi r^2 h$$

(2 marks)

CLO1  
C3

CLO1  
C2

b)



Formula:

$$\text{Area of semicircle} = \frac{1}{2} \times \pi \times r^2$$

$$\text{Area of parallelogram} = \text{base} \times \text{height}$$

Calculate the **area** of the figure.

Hitungkan **luas** bagi rajah di atas. ( $\pi = 3.142$ )

(7 marks)

CLO1  
C3

c) A rectangular water tank is 3 m long, 1.5 m wide and 2 m in height. How much water, in  $\text{m}^3$ , must be pumped into the tank to raise the water level by 8 cm.

Sebuah tangki air berbentuk segiempat tepat adalah 3 m panjang, 1.5 m lebar dan 2 m tinggi. Berapa banyak air, dalam  $\text{m}^3$ , mesti di pam kedalam tangki untuk menaikkan paras air sebanyak 8 cm.

(12 marks)

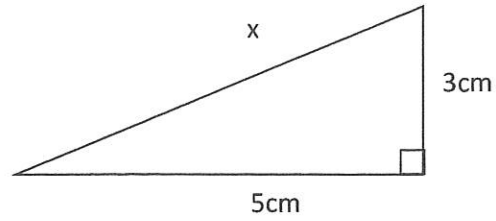
QUESTION 6

CLO1  
C2

a) Calculate the value of  $x$ .

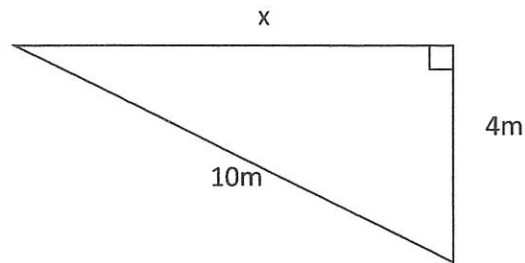
*Hitungkan nilai  $x$ .*

i.



(4 marks)

ii.



(4 marks)

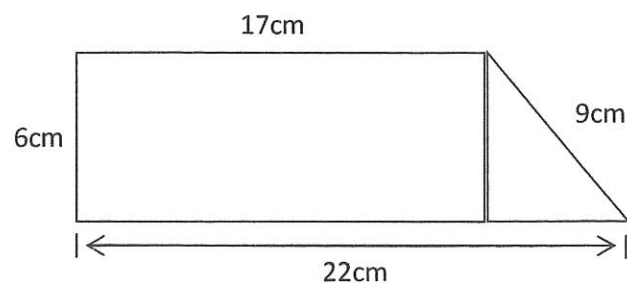
CLO1  
C2

b) i. Calculate the **perimeter** of the figure.

*Hitungkan perimeter bagi rajah.*

ii. Calculate the **area** of the figure.

*Hitungkan luas bagi rajah.*



Formula:

Area of rectangle = length  $\times$  width

Area of triangle =  $\frac{1}{2} \times$  height  $\times$  base

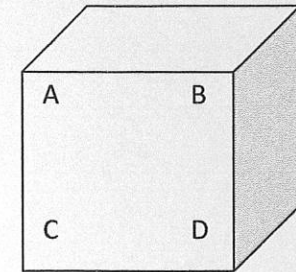
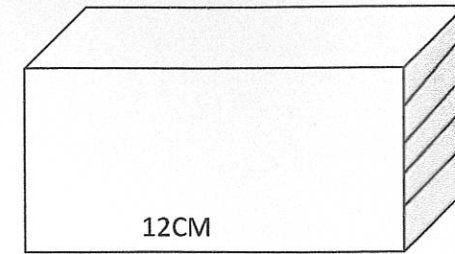
(8 marks)

CLO1  
C3

c) The diagram below shows a cuboid and cube having same volume. The shaded area is  $54\text{cm}^2$ . Calculate the surface area of ABCD in  $\text{cm}^2$ .

*Rajah dibawah menunjukkan kuboid dan kubus yang mempunyai isipadu yang sama.*

*Luas satah berlorek kuboid ialah  $54\text{cm}^2$ . Berapakah luas permukaan ABCD, dalam  $\text{cm}^2$ .*



(9 marks)

SOALAN TAMAT