

Section B

- 1 Diagram 1 shows part of the Modern Periodic Table of Elements.
Rajah 1 menunjukkan sebahagian daripada Jadual Berkala Unsur Moden.

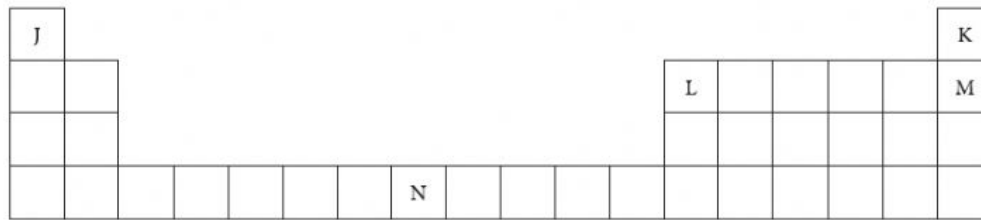


Diagram 1/ *Rajah 1*

- (a) Name the group of J and K.
Namakan kumpulan J dan K.

J : _____

K: _____

[2 marks/markah]

- (b) Based on the diagram above, which element represents:

Berdasarkan rajah di atas, unsur yang manakah mewakili:

- (i) transition element?
unsur peralihan?

[1 mark/markah]

- (ii) semi-metal?
separuh logam?

[1 mark/markah]

- (iii) inert gas?
gas nadir?

[1 mark/markah]

- (c) State the basic principle of the arrangement of elements in Modern Periodic Table of Elements.
Nyatakan prinsip asas susunan unsur dalam Jadual Berkala Unsur Moden.

[1 mark/markah]

- 2 Diagram 2 shows symbol of an element.
Rajah 2 menunjukkan simbol bagi suatu unsur.

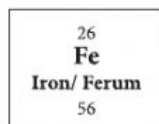


Diagram 2/ Rajah 2

- (a) Write the number of protons and number of electrons for this elements.

Tuliskan bilangan proton dan bilangan elektron bagi unsur ini.

[2 marks/markah]

- (b) Iron element, Fe will form an iron(II) ion, Fe^{2+} . State the number of protons and number of electrons for the iron(II) ion, Fe^{2+} .

Unsur ferum, Fe akan membentuk ion ferum(II), Fe^{2+} . Nyatakan bilangan proton dan bilangan elektron bagi ion ferum(II), Fe^{2+} .

- (i) Number of protons:

Bilangan proton:

(iii) $\alpha \geq 1$ and $\beta \in (0, 1)$ and $\alpha + \beta \geq 1$.

- (ii) Number of electrons:

Bilangan elektron:

[2 marks/markah]

- 3 Diagram 3 shows an element in Modern Periodic Table of Elements

Rajah 3 menunjukkan satu unsur dalam Jadual Berkala Unsur Moden.

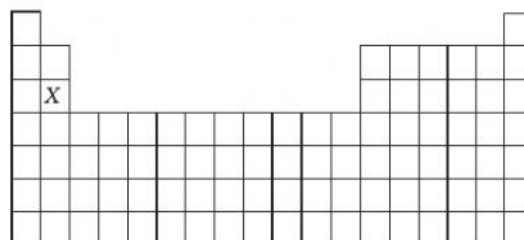


Diagram 3/ Rajah 3

- (a) What is the position of X in Modern Periodic Table of Elements in Diagram 3?
Apakah kedudukan X dalam Jadual Berkala Unsur Moden dalam Rajah 3?

[1 mark/markah]

- (b) What is the metallic properties for element X?
Apakah sifat logam bagi unsur X?

[1 mark/markah]

- (c) Write the electron arrangement for atomic element X.
Tulis susunan elektron bagi atom unsur X.

[1 mark/markah]

- (d) Based on the information below, determine the position for element R, S and T on the Modern Periodic Table of Elements in Diagram 3.
Berdasarkan maklumat di bawah, tentukan kedudukan bagi unsur R, S dan T pada Jadual Berkala Unsur Moden dalam Rajah 3.

19 R 39	18 S 40	6 T 12
---------------	---------------	--------------

- 4 Table 1 shows the proton numbers and nucleon numbers of three types of elements, X, Y and Z.
Jadual 1 menunjukkan nombor proton dan nombor nukleon bagi tiga jenis unsur, X, Y dan Z.

Elements Unsur	Nombor proton Proton number	Nombor nukleon Nucleon number
X	17	35
Y	17	37
Z	11	24

Table 1/ Jadual 1

- (a) State the number of neutrons of element X, Y and Z.
Nyatakan bilangan neutron bagi unsur X, Y dan Z.

X: _____

Y: _____

Z: _____

[3 marks/markah]

- (b) Which of the elements are pair of isotopes?
Unsur yang manakah merupakan pasangan isotop?

[1 mark/markah]

- (c) Explain your answer in 4(b).
Jelaskan jawapan anda di 4(b).

[1 mark/markah]

- (d) What is the meaning of nucleon number?
Apakah yang dimaksudkan dengan nombor nukleon?

[1 mark/markah]

- 5 Diagram 4 shows the electron arrangements of two isotopes.

Rajah 4 menunjukkan susunan elektron bagi dua isotop.

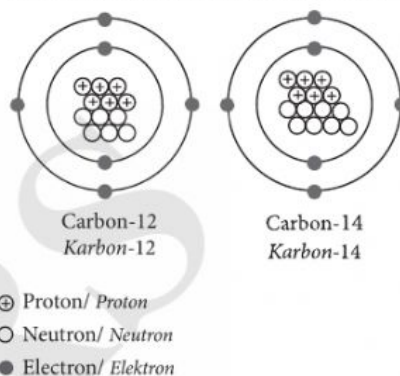


Diagram 4/ Rajah 4

- (a) Give the definition of isotopes.
Berikan definisi bagi isotop.

[1 mark/markah]

- (b) (i) What are the differences between the two isotopes?
Apakah perbezaan antara kedua-dua isotop tersebut?

[1 mark/markah]

- (ii) Is the difference stated in 5(b)(i) affect the chemical properties of the elements?
Adakah perbezaan yang dinyatakan di 5(b)(i) mempengaruhi sifat kimia unsur tersebut?

[1 mark/markah]

- (c) State **one** field that involves the use of carbon-14.

Nyatakan **satu** bidang yang melibatkan penggunaan karbon-14.

[1 mark/markah]