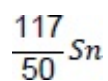


Q1.

C



[1]

Q2.

C



[1]

Q3.

D



[1]

Q4.

D



[1]

Q5.

- (a) **M1** (Same) number of protons OR electrons

*Do not allow same electronic configuration for **M1***

1

- M2** (Different) number of neutrons

1

[2]

Q6.

- (a)



Allow mass number and atomic number on RHS of Fe

[1]

Q7.

C

[1]

Q8.

A

[1]

Q9.

D

[1]

Q10.

(a) 1.6734×10^{-24} (g)

Only.

1.6734×10^{-27} kg

Not 1.67×10^{-24} (g).

[1]

Q11.

(a) (Total number of) protons and neutrons (in nucleus of atom)

(number of) nucleons

1

(b) Zn

Do not allow Zn^{-1} or Zn^{+1} or ZN

Ignore numbers

1

[2]

Q12.

(a) 37

These answers only.

Allow answers in words.

1

48

Ignore any sum(s) shown to work out the answers.

1

[2]

Q13.

Mass number = number of protons + neutrons (in the nucleus/atom)

Not in a substance or compound or element

1

7 protons and 7 electrons

1

8 neutrons

1

[3]

Q14.

(a)

Particle	Relative Charge	Relative mass
Proton	+1	1
Neutron	0	1

1

1

Need +1 for proton

(b) (i) 74;

Not 74.0

1

(ii) 112;

Not 112.0

1

[4]

Q15.

(a) Number of protons in the nucleus

1

(b) They may have different numbers of neutrons

1

[2]

Q16.

(penalty for sig fig error = 1 mark per question)

- (a) neutron: relative mass = 1 relative charge = 0
(not 'neutral')

1

electron: relative mass = $1/1800 \rightarrow 0/\text{negligible}$ relative charge = -1

1

- (b) $^{17}\text{O}/\text{O}^{17}$ mass number *(Do not accept 17.0)*

1

oxygen symbol 'O'

1

[4]

Q17.

- (a) Proton mass = 1 charge = $+1$
Electron mass $\leq 1/1800$ Or $\leq 5.6 \times 10^{-4}$ charge = -1
(Do not accept +1 for proton mass or 'g' units)

2

- (b) (i) 13

1

- (ii) Si

1

Mass number = 28 **and** atomic number = 14

(Do not accept 28.1 or 28.0 or 'Silicon')

1

[5]

Q18.

(a)

Particle	Relative charge	Relative mass	
Proton	+1 or 1+	1	(1)
Neutron	0 or no charge/neutral/zero	1 (<u>not</u> - 1)	(1)
Electron	-1 or 1-	1/1800 to 1/2000	(1)

or negligible

or zero

or 5.0×10^{-4} to 5.6×10^{-4}

*if 'g' in mass column - wrong
penalise once*

3

(b) $^{38}_{18}\text{Ar}$ **(1)(1)**

Allow numbers before or after Ar

2

[5]

Q19.

C

[1]