

1. Atomic Structure

1.2 Isotopes

Paper 3

Marking Scheme

Q1.

| | | | | | |
|-----|------------------------|-------------------|--------------------|---------------------------------|---|
| (b) | isotope | number of protons | number of neutrons | total number of electron shells | 3 |
| | $^{103}_{45}\text{Rh}$ | • 45 | 58 | • 5 | |
| | $^{191}_{77}\text{Ir}$ | • 77 | • 114 | 6 | |
| | $^{193}_{77}\text{Ir}$ | • 77 | • 116 | 6 | |

Q2.

| | | | | | |
|-----|---------------|----------------|--------------------|---------------------|---|
| (a) | | nucleon number | number of neutrons | number of electrons | 3 |
| | Tellurium-130 | 130 | 78 | 52 | |

Q3.

| | | |
|--------|--|---|
| (b)(i) | they have the same electron arrangement / electronic configuration | 1 |
|--------|--|---|

Q4.

| | | |
|--------|---------------------------------|---|
| (a)(i) | (different) number of neutrons. | 1 |
|--------|---------------------------------|---|

Q5.

| | | |
|-----|--|---|
| (c) | answer in terms of subatomic particles in the nucleus same (number of) protons AND different (number of) neutrons | 1 |
|-----|--|---|