2 (a) Which statement describes the term **atomic number** for a nucleus?

(1)

- ☒ **A** number of electrons in the nucleus
- ☒ **B** number of neutrons in the nucleus
- ☒ **C** number of protons in the nucleus
- ☒ **D** number of protons and neutrons in the nucleus

(b) Which statement describes the term **mass number** for a nucleus?

(1)

- ☒ **A** number of electrons in the nucleus
- ☒ **B** number of neutrons in the nucleus
- ☒ **C** number of protons in the nucleus
- ☒ **D** number of protons and neutrons in the nucleus

(c) Which statement describes the term **isotopes**?

(1)

- ☒ **A** atoms with the same number of electrons but a different number of protons
- ☒ **B** atoms with the same number of neutrons but a different number of electrons
- ☒ **C** atoms with the same number of neutrons but a different number of protons
- ☒ **D** atoms with the same number of protons but a different number of neutrons

(d) An atom contains 8 protons, 8 neutrons and 8 electrons.

Which of these would result in a negatively charged ion of the same element?

(1)

- ☒ **A** adding an electron
- ☒ **B** adding a proton
- ☒ **C** removing an electron
- ☒ **D** removing a proton

(e) It is not possible to predict exactly when a radioactive nucleus will decay.

Which feature of radioactive decay best explains this observation?

(1)

- ☒ **A** radioactive decay can change the structure of the nucleus
- ☒ **B** radioactive decay happens at random
- ☒ **C** radioactive decay is irreversible
- ☒ **D** radioactive decay makes a nucleus more stable

(f) Which of these is the correct unit for measuring the activity of a radioactive sample?

(1)

- ☒ **A** becquerel (Bq)
- ☒ **B** coulomb (C)
- ☒ **C** joule (J)
- ☒ **D** watt (W)

(Total for Question 2 = 6 marks)