Trends that metal. (1 mark) metals are not

Trendswithin the Periodic TableTrends within the periodictable help chemists predict reactions. Trends within theperiodic table help chemists predict reactions. Use your knowledge of thosetrends to answer the following questions.

1. Explain how an element's group in the periodictable can be used to predict its outer shell electrons. Elements in the same group have similar chemical propertiesbecause the atoms of these elements have the same number of electrons in there outershell for example Lithium, sodium and potassium are all ingroup 1 so therefore have one electron in there outer shell.

(3marks) 2. Each element in the periodic table has a specificproton (atomic) number. Research an element which has at least two isotopes andprovide the number of protons, neutrons and electrons for each isotope.

(Youmay not choose carbon). Hydrogen 1Protons: 0Electrons: 1Neutrons: 1 Hydrogen 2Protons: 1Electrons: 1Neutrons: 1 Hydrogen 3Protons: 2Electrons: 1Neutrons:

1

(3marks) 3. Metals are not usually found in their pure elementalform. Explain why (one mark) and give an example of a metallic ore mined inAustralia (one mark). Provide one use for that metal. (1 mark) Metals are not usually found in their pure elemental form becausemost metals occur in nature as compounds chemically combined with other elements. A metallic ore mined in Australia is Iron.

Iron is used mostly to make steel whichcan then be used as pots and pans. 4. Provide three properties of the metal you chose inquestion 3. Explain two of those properties in terms of the metallic bondingmodel.

(3mark) Three properties of iron are: Conduct heat: Solid and liquid metalsconduct heat. The delocalised electrons are free to move around in thesolid lattice. These mobile electrons act as charge carriers in theconduction of electricity or as energy conductors in the conduction of heat. Strong. Malleable: Thedelocalised electrons in the ‘ sea’ of electrons in the metallic bond, enablethe metal atoms to roll over each other when a stress is applied. 5. Provide the electron configuration for iron. Ar 3d6 4s2 (1 mark) 6.

Predict what would occur if a period three, group 1element came in contact with a period 2, group 17 element. Explain yourprediction in terms of electron donation and acceptance. (2 marks)A sodium atom has one electron in the outer shell. A fluorine atom seven electrons in the outer shell. A sodium atom loses an electron to a chlorine atom. The sodium atom becomes a positive sodium ion. The fluorine atom becomes a negative flurine ion. Both sodium ions and fluorine ions have full electron shells.

The sodium ions and fluorine ions form an ionic lattice.. 7.

Name the type of bonding which occurs as a result ofthe reaction in question 6 above. (1mark)Chemical bonding8. Neon gas is used in neon signs. Explain why it givesoff red light when heated by electrical current (2marks) 9. Include a full bibliography and use footnotes fordiagrams and quotations if applicable.

(2marks)TOTAL 20 marks C: Louise/2017/February/trends withinthe periodic table. doc