Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_

Science 10: Bohr Model and the Periodic Table

1. a. What element is this a Bohr model of? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5p

b. How many neutrons are in its nucleus? \_\_\_\_\_\_\_

c. Is this an ion? \_\_\_\_\_\_\_

d. How many valence electrons does it have? \_\_\_\_\_\_\_

e. What period is it in? \_\_\_\_\_\_\_

f. What family is it in? \_\_\_\_\_\_\_

2. a. What element is this a Bohr model of? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8p

b. How many neutrons are in its nucleus? \_\_\_\_\_\_\_

c. Is this an ion? \_\_\_\_\_\_\_

d. How many valence electrons does it have? \_\_\_\_\_\_\_

e. What period is it in? \_\_\_\_\_\_\_

f. What family is it in?\_\_\_\_\_\_\_

3. On the diagram provided draw the correct electron arrangement for a neutral atom of carbon **AND** indicate the number of protons and neutrons in the nucleus.

4. On the diagram provided draw the correct electron arrangement for a neutral atom of potassium **AND** indicate the number of protons and neutrons in the nucleus.

5. On the diagram provided draw the correct electron arrangement for a neutral atom of aluminum **AND** indicate the number of protons and neutrons in the nucleus.

6. How many electrons are in the valence shell of sulphur atom? \_\_\_\_\_\_\_

7. How many electrons are there in the valence shell of an iron atom? \_\_\_\_\_\_\_

8. How many electrons are in the second shell of a silicon atom? \_\_\_\_\_\_\_

9. How many full shells does a chlorine atom have? \_\_\_\_\_\_\_

10. How many electrons are in the valence shell of a Neon atom? \_\_\_\_\_\_\_

11. How many electrons are in the valence shell of a Zn+2 ion? \_\_\_\_\_\_\_

12. How many full shells does a hydrogen atom have? \_\_\_\_\_\_\_

13. What is the smallest atom with a ‘stable octet’? \_\_\_\_\_\_\_

14. How many valence electrons does a potassium atom have? \_\_\_\_\_\_\_

15. How many valence electrons does an oxygen atom have? \_\_\_\_\_\_\_

16. Draw a Bohr model of a fluorine atom.

17. Draw a Bohr model of a stable fluoride ion.

18. Draw a Bohr model of a stable magnesium ion.

19. Will arsenic (atomic number 33) gain or lose electrons to form a stable ion? How many?

20. What ion is shown in the following Bohr diagram?

20p 2e 8e 8e

20n

21. What ion is shown in the following Bohr diagram?

15p 2e 8e 8e

16n

22. a. What atom is shown in the diagram below?

15p 2e 8e 5e

16n

b. How many valence electrons does it have?

c. How many electrons will it lose/gain to form a stable ion?

d. Is this a metal or a non-metal?

23. How many valence electrons in an atom of Boron?

A. 0 B. 1 C. 2

D. 3 E. 4 F. 5

G. 6 H. 7 I. 8

24. How many valence electrons in an atom of Chlorine?

A. 0 B. 1 C. 2

D. 3 E. 4 F. 5

G. 6 H. 7 I. 8

25. How many valence electrons in an atom of Calcium?

A. 0 B. 1 C. 2

D. 3 E. 4 F. 5

G. 6 H. 7 I. 8

26. How many valence electrons in an atom of Neon?

A. 0 B. 1 C. 2

D. 3 E. 4 F. 5

G. 6 H. 7 I. 8

27. For scandium to have a full valence shell what must happen?

A. It must lose 1 electron B. It must gain 1 electron C. It must lose 2 electrons D. It must gain 2 electrons E. It must lose 3 electrons F. It must gain 3 electrons

G. It must lose 4 electrons H. It must gain 4 electrons

28. For bromine to have a full valence shell what must happen?

A. It must lose 1 electron B. It must gain 1 electron C. It must lose 2 electrons D. It must gain 2 electrons E. It must lose 3 electrons F. It must gain 3 electrons

G. It must lose 4 electrons H. It must gain 4 electrons

29. How many full shells does an aluminum atom have?

30. What is the atomic mass of an atom with 4 protons, 2 electrons and 5 neutrons?

31. What is the atomic number of an atom with 12 protons, 10 electrons and 13 neutrons?

32. What is the charge of an atom with 3 protons, 2 electrons and 4 neutrons?

33. a. Draw a Bohr model of a stable oxide ion.

b. Draw a Lewis Dot model of a stable oxide ion.

c. What is its charge?

34. a. Draw a Bohr model of a stable sulphide ion.

b. Draw a Lewis Dot model of a stable sulphide ion.

c. What is its charge?

35. a. Draw a Bohr model of a stable calcium ion.

b. Draw a Lewis Dot model of a stable calcium ion.

c. What is its charge?

36. a. Draw a Bohr model of a stable sodium ion.

b. Draw a Lewis Dot model of a stable sodium ion.

c. What is its charge?

37. a. Draw a Bohr model of a stable chloride ion.

b. Draw a Lewis Dot model of a stable chloride ion.

c. What is its charge?

38. a. Draw a Bohr model of a stable fluoride ion.

b. Draw a Lewis Dot model of a stable fluoride ion.

c. What is its charge?