CHEMISTRY

BOOKS - SWAN PUBLICATION

PERIODIC CLASSIFICATION OF ELEMENTS

Intext Questions Solved

1. Did doberiner's triads also exist in the columns of newlands's octaves? Compare and

find out.

2. What were the limitations of deberiner's calssification?

3. What were the limitations of newland's law of octaves?

Textbook Questions

1. Use Mendeleev's periodic table to predict the formula for the oxides of following elements:

K,C,Ba,Al

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2. Besides gallium which other elements have since been discovered to fill the gaps left by mendeleev in his periodic table?

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3. What were thae criteria used by Mendeleev in creating his periodic table?

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4. Why do you think the noble gases are placed in a separate group?

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5. How could modern periodic table remove various anomallies of mendeleev periodic table/

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6. Name two elements you would expect to show same kind of chemical reactivity as magnesium what is the basis for your choice?

7. Name three elements that have only a single electron in their outermost shells

8. Name two elements that have two electrons in their outermost shells

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9. Name: three elements with filled outermost shells

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10. Lithium, sodium, potassium are all metals that react with water to libérate hydrogen gas. Is there any similarity in the atoms of these elements ?

11. Helium is an unreactive gas and neon is gas of extermely low reactivity

What if anything do their atmos have in common?

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12. Work out the formula of magnesium hydrogen carbonate.

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13. An element X has a valancy of 2. write the simplest formula for bromide of the element.

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Textbook Exercises

1. An element X has a valancy of 2. write the simplest formula for oxide of the element.

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2. Element 'X' forms a chloride with the formula XCl_2 Which is a solid with a high melting point, X would most likely be in the same group of the periodic table as:

Na, Mg, Al, Si,

A. Na

B. Mg

C. Al

D. Si

Answer: B

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3. Calculate formula mass of following compound : K_2O

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4. Which element has

the electronic configuration 2, 8,4 ?

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5. Which element has the electronic

configuration 2, 8,8, 1 ?

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6. Calculate the formula mass of KHCO3.

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7. Write the cation and anion present , if any , in the following : CH3COONa

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8. What property do all elements in the same column of the periodic table as boron have in

common?

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9. Write the cation and anion present , if any , in the following : NaCl

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10. An atom has electronic configuration 2,8,7. What is the atomic number of this elements?

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11. An atom has electronic configuration 2,8,7. To which of the following element would it be chemically similar?(atomic number are given in following

N(7),F(9),Ar(18)

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12. The position of three elements A, B and C in the periodic table are as shown below:

Group 16	Group 17
.....	.....
.....	A
.....	.....
B	C

State whether a is a metal or non-metal

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13. The position of three elements A, B and C in the periodic table are as shown below:

Group 16	Group 17
.....	.....
.....	A
.....	.....
B	C

State whether C is more reactive or less reactive than A.

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14. Write the cation and anion present , if any , in the following : NH_4NO_3

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15. The position of three elements A, B and C in the Periodic Table are shown below :

Group 16	Group 17
—	—
.	A
—	—
B	C

Which type of ion, cation or anion, will be formed by element A?

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16. Nitrogen(atomic number 7) and phosphorus (atomic number 15) belong to group 15 of the periodic table. Write the electronic configurationos these two

elements.Which of these will more electronegative? Why?

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17. How does the electronic configuration of an atom relate to its position In the modern periodic table?

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18. In the modern periodic table, calcium (atomic number20) is surrounded by element with atomic number 12,19,21 and 38 which of these have physical and chemical properties resembling calcium?

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19. Compare and contrast the arrangement of elements in mendeleev's periodic table and the modern periodic table?

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Additional Important Questions Multiple Choice Questions

1. Modern periodic table is based upon :

A. Mass number

B. Atomic number

C. Atomic mass

D. None of above.

Answer: B

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2. An element has the electronic configuration 2,8,3 what is its group number in modern periodic table?

A. Group 2

B. Group 17

C. Group 16

D. Group 18

Answer: D

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3. Which among the following do not belong to group 18 ?

A. He

B. Ne

C. K

D. Kr

Answer: C

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4. An element is having electronic configuration, 2,8,4 to which group of periodic does it belong ?

A. Group14

B. Group15

C. Group16

D. Group17

Answer: A

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5. An element is having electronic configuration 2, 8, 3. What is its valency ?

A. 2

B. 8

C. 5

D. 3

Answer: D

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6. What is the valency of Ne ?

A. 1

B. 2

C. 0

D. 8

Answer: C

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7. Atomic number is always a :

A. Natural number

B. Fraction

C. Whole number

D. Infinity.

Answer: C

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Additional Important Questions Very Short Answer Type Questions

1. What were thae criteria used by Mendeleev in creating his periodic table?

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2. Atomic radius of hydrogen is 37pm. Express it in metres.

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3. Name the most metallic and most non-metallic elements in the Periodic Table.

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4. The atomic numbers of three elements X, Y and Z are 3, 11 and 17 respectively. State giving reason which two elements will show similar chemical properties.

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5. Which one has the bigger size?

Na (11) or Cl (17), CI (17) or F (9)

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6. Size of sodium atom- is bigger than that of hydrogen atom. Why?

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7. How many elements are known till today ?

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8. Out of two elements potassium and sodium, which one can lose electron easily ? Give reason for your answer.

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9. Name the elements discovered after mendeleev's periodic table?

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10. Name a halogen other than chlorine, bromine and iodine.

11. Who gave the law of octaves?

12. Náme group of elements which were not known at the time when Mendeleev prepared the periodic table.

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13. What was the need for the classification of elements?

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14. Why are the elements of group 18 called zero valent?

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15. What is the maximum number of electrons in the outermost shell of an atom ?

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16. How many elements are known till today ?

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Additional Important Questions Short Answer Type Questions

1. Write two achievements of Mendeleev's periodic table.

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2. Nitrogen(atomic number 7) and phosphorus (atomic number 15) belong to

group 15 of the periodic table. Write the electronic configurationos these two elements.Which of these will more electronegative? Why?

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3. Why group 17 elements form Uninegative Anions ?

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4. Give reasons for the following:

Lithium atom is smaller than sodium atom.

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5. Give reasons for the following:

Chlorine (atomic number 17) is more electronegative than:sulphur (atomic number 16).

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6. How does the reactivity of the metals vary in a group?

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7. The elements Li, Na and K, each having one valence electron, are in period 2, 3 and 4 respectively of modern periodic table.

In which group of the periodic table should they be?

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8. The elements Li, Na and K, each having one valence electron, are in period 2, 3 and 4 respectively of modern periodic table.

Which one of them is least rea-ctive ?

Give reason to justify your answer in each case.

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9. The elements Li, Na and K, each having one valence electron, are in period 2, 3 and 4

respectively of modern periodic table.

Which one of them has the largest atomic radius?

Give reason to justify your answer in each case.

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10. Four elements P, Q, R and S have atomic numbers 12, 13, 14 and 15 respectively.

Answer the following questions giving reasons

:

What is the valency of Q?

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11. Four elements P, Q, R and S have atomic numbers 12, 13, 14 and 15 respectively.

Answer the following questions giving reasons :

Classify these elements as metals and non-metals

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12. Four elements P, Q, R and S have atomic numbers 12, 13, 14 and 15 respectively.

Answer the following questions giving reasons :

Which of these elements will form the most basic oxide ?

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13. The element Be, Mg, Ca are placed in the second group of the periodic table. Their

atomic numbers are 4, 12, 20 respectively.

Write the electronic configuration of these elements.

Give reason for your answer.

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14. The element Be, Mg, Ca are placed in the second group of the periodic table. Their atomic numbers are 4, 12, 20 respectively.

Write the electronic configuration of these

elements.

Give reason for your answer.

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15. The element Be, Mg, Ca are placed in the second group of the periodic table. Their atomic numbers are 4, 12, 20 respectively.

Write the electronic configuration of these elements.

Give reason for your answer.

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16. Table given below shows a part of the periodic table:

H							He
Li	Be	B	C	N	O	F	Ne
Na	Mg	Al	Si	P	S	Cl	Ar

Using this Table, explain why .

Li and Na are considered as active metals.

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17. Table given below shows a part of the periodic table:

H							He
Li	Be	B	C	N	O	F	Ne
Na	Mg	Al	Si	P	S	Cl	Ar

Using this Table, explain why .

Atomic size of Mg is less than that of Na.

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18. Table given below shows a part of the periodic table:

H							He
Li	Be	B	C	N	O	F	Ne
Na	Mg	Al	Si	P	S	Cl	Ar

Using this Table, explain why .

Fluorine is more reactive than chlorine.

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19. Explain the following term- Sericulture

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20. Two elements X and Y belong to group 1 and 2 - respectively in the same period of periodic table. Compare them with respect to : the number of valence electrons in their atoms

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21. Two elements X and Y belong to group 1 and 2 - respectively in the same period of

periodic table. Compare them with respect to :

their valencies

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22. Two elements X and Y belong to group 1 and 2 - respectively in the same period of periodic table. Compare them with respect to :

metallic character

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23. Two elements X and Y belong to group 1 and 2 - respectively in the same period of periodic table. Compare them with respect to : the sizes of their atoms

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24. Two elements X and Y belong to group 1 and 2 - respectively in the same period of periodic table. Compare them with respect to : the formulae of their oxides

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25. Two elements X and Y belong to group 1 and 2 - respectively in the same period of periodic table. Compare them with respect to : the formulae of their chlorides

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26. Lithium, sodium potassium are all metals that react with water to liberate hydrogen gas

is there any similarity in the atoms of these elements

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27. Explain the following term- Rearing.

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28. An atom has electronic configuration 2,8,7. What is the atomic number of this elements?

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29. The formula of magnesium oxide is Mgo. State the formula of barium nitrate and barium sulphate, if barium belongs to the same group as magnesium:

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30. What is metalloid ?

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31. Fill in the blanks- Due to _____ in clinical thermometer, mercury does not fall down on its own.

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32. Fill in the blanks- _____ is the solid wate collected from waste water during treatment in water treatment plant.

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33. Write newland's law of octaves for classification of elements.

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34. Why Newland's law, is called "Law of Octaves."?

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Additional Important Questions Long Answer Type Questions

1. What were the two criteria used by mendeleev in creating his periodic table?

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2. Define mendeleev's periodic law

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3. Why could no fixed position be given to hydrogen in Mendeleev's Periodic Table?

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4. How does atomic size of elements vary on moving from top to bottom in a group


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5. Name first three members of group 2 and 16.


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6. Name any four metalloids.

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7. State whether the statement is true or false- The process of obtaining fleece from sheep is called Rearing.

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8. Fill in the blanks- Obtaining paper from wood pulp is an example of _____ change.

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9. State whether the statement is true or false- The transfer of pollen grains from anther to stigma of same or different flower is known as fertilization.

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10. Explain the following term- Binary fission

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11. Atomic number of a few elements are : 10, 20, 7, 14

Identify the names of these elements in the Periodic Table.

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12. Fill in the blanks- _____ and _____ are the examples of insulators of heat.

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13. Fill in the blanks- _____ is used to disinfect water.

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14. Atomic number of a few elements are : 10, 20, 7, 14

Determine the valency of these elements.

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15. Compare and contrast the arrangement of elements in mendeleev's periodic table and the modern periodic table?

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16. Differences between 1st group elements and 17th group elements.