CHEMISTRY

BOOKS - PATHFINDER CHEMISTRY (BENGALI ENGLISH)

PERIODIC CLASSIFICATION OF ELEMENTS AND PERIODIC PROPERTIES

Question Bank

1. Name the element whose positon in the periodic table is still controversial.

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2. What are the definite gaps of atomic numbers in a group?

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3. An element is present in the third period of p-block. It has 5 electrons in its outermost shell. Predict its group. How many unpaired electrons does it have?

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4. What is the modern name of the element 'ekaboron' as predicted by Mendeleev?

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5. Write down the electronic configuration of the outermost electronic orbit of the most electronegative element.

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6. The electronic configuration of an elements is $[Ar]3d^8 4S^2$. Name the block to which it belongs?

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7. Namea transition metal which is used as catalyst.

8. Arrange mg, A1, Si and Na in the increasing order of their lonisation potentials.

9. Mention one similarity in property of Li and Mg which are diagonally related.

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10. Why are the most of the atoms or ions of transition elements paramagnetic?

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11. With what types of elements a period of the periodic table starts and ends.

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12. Mention one similarity in atoms of the elements belonging to the same group of the periodic table.

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13. Arrange the different sub-energy levels in the decreasing order of screening effect.

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14. Mention a property whhich is not periodic property of elements.

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15. Arrange $Mg^{2}+, O^{2}-, Na^{+}$ and F^{-} in the descending order of their ionic sizes.

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16. Which one of the iso-electronic ions K^+, Cl^-, S^{2-} and Ca^{2++} has the greatest size?

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17. Which important property did Mendeleev use to classify the elements in his periodic table?

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18. Fourth period has 18 elements and not 52. Explain.

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19. Give the general electronic configuration of 's' and 'p'-block elements,

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20. What are 'transition' elements?

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21. What do you mean by 'inner-transition elements'?

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22. Give the Electronic configuration and position of the elements in the periodic table. B(5), CI(17), Sc(21), Fe(26), Ca(20), Ar(18).

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23. Why are the cations smaller than atom?

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24. To which block does the element with atomic number 50 belong?

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25. Arrange the increasing order of atomic radii Li, Na, K.

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26. Which is largest among Ca^{+2}, Mg^{+2}, Ba^{+2} and why?

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27. Which of the elements Na, Mg, Si and P have the geatest difference between 1st and 2nd ionization enthalpy and why?

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28. Why Gr-17 elements acts as good oxidising agent?

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29. Arrange Cl, Cl^-, Cl^+ in the increasing order of size?

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30. How does metallic character vary in the group and period?

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31. State the decreasing order of the penetration power of orbitals.

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32. An element has on atomic number = 53. State its position in the Periodic Table.

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33. The Reason for diagonal relationship is -

A. Newtron to Proton ration

B. Charge to redius ration

C. Similar electronegativity

D. Order of ionic or atomic readius.

Answer: B

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34. The order of ionic redius of N^{3-}, O^{2-}, F^{-} and Na^{+} is -

A. $N^{3-} > O^{2-} > F^{-} > Na^{+}$

B. $N^{3-} > Na^{+} > O^{2-} > F^{-}$

C. $Na^{+} > O^{2-} > N^{3-} > F^{-}$

D. $O^{2-} > F^{-} > Na^{+} > N^{3-}$

Answer: A

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35. What are actinones?

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36. The elements A, B and C have atomic numbers Z -2, Z and Z +1 respecively. Of the three, B is an inert gas.

Which one has the highest value of electronegativity?

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37. The elements A, B and C have atomic numbers Z -2, Z and Z +1 respecively. Of the three, B is an inert gas.

Which one has the highest value of ionisation potential?

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38. Why do transition elements have a greater tendency to form co-ordinate compounds?

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39. Give four defects of 'Mendeleev's periodic table.

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40. Consider the following species.

$N^{3-}, O^{2-}, Na^{+}, Mg^{+2}, Al^{+3}.$

What is common to them?

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41. Consider the following species.

$N^{3-}, O^{2-}, Na^{+}, Mg^{+2}, Al^{+3}.$

Arrange them in order of increasing ionic radii.

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42. First I.P. of Be is greater than B.

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43. First I.P. of N is greater than O Explain.

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44. The first I.P. of 'C' is greater than of 'B' where as reverse is true for second I.P. Explain.

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45. Arrange the following in order of increasing radii.

$I^-, I, I^+,$

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46. Arrange the following in order of increasing radii.

F, Cl, Br

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47. Electron gain enthalpy of Cl is more negative than F though electronegativity of F is greater than 'Cl'- Explain.

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48. What is the reason of periodicity in the periodic table?

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49. What is the voriation of lonisation Energy in a group?

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50. If the Electron. Affinity of Chlorine is -3.7 cr then how energy is released when 7.10 g of chlorine otoms are completely converted to chlorine ions? (Cl = 35.5)

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51. What is Lanthanide contraction?

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52. What is the cause of Lanthanide contraction.

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53. The element 119 has not been descovered. What would be the IUPAC name and symbol

for the element? Predict the electronic configuration of the elements and also the formula of the most stable chloride and oxide.

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54. Write the names and deduce the atomic numbers of the following.

The third alkali metal

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55. Write the names and deduce the atomic numbers of the following.

the second transition element

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56. Write the names and deduce the atomic numbers of the following.

The fourth noble gas

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57. The electronic configuration of some elements are as follow :

which element will be most metallic?

A. $[Ne]3s^2 3p^3$

B. $[Ne]3s^2 3p^4$

C. $[Ne]3s^2 3p^5$

D. $[Ne]3s^2 2p^6 3d^5 4s^1$

Answer: D

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58. The electronic configuration of some elements are as follow :

Which will have highest electron affinity?

A. $[Ne]3s^2 3p^3$

B. $[Ne]3s^2 3p^4$

C. $[Ne]3s^2 3p^5$

D. $[Ne]3s^2 2p^6 3d^5 4s^1$

Answer: C

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59. The electronic configuration of some elements are as follow :

Which belongs to 'd' block?

A. $[Ne]3s^2 3p^3$

B. $[Ne]3s^2 3p^4$

C. $[Ne]3s^2 3p^5$

D. $[Ne]3s^2 2p^6 3d^5 4s^1$

Answer: D

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60. Consider the elements N, P, O, S. Arrange them increasing order of

First lonisation onthalpy.

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61. Consider the elements N, P, O, S. Arrange them increasing order of

Electron affinity

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62. Consider the elements N, P, O, S. Arrange them increasing order of

Non metalilic character.

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63. What will be the increasing order of basicily of CrO, VO, Feo and TiO? Justify.

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64. The atomic no. of an element = 10. What its position in the periodic table?

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65. The aqueous solution of a chloride of one clement is neutral in nature. State the periodic formula of the chloride. The symbol of element is "x"

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66. Out of the following pairs, which would you expect to have

Lower first ionization enthalpy, Sr or Be

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67. Out of the following pairs, which would you expect to have

More ionization enthalpy, Ga or Al

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68. Out of the following pairs, which would you expect to have

Higher atomic radius, Mg or Sr

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69. Out of the following pairs, which would you expect to have

More negative electron gain enthalpy, Br or I

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70. Out of the following pairs, which would you expect to have

Higher second ionization enthalpy, Li or Be

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71. Define ionisation potential?

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72. Write short note on diagonal relationship.

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73. Write differences between electronegativity and electron affinity.

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74. What is the relationship between effective nuclear charge and screening constant?

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75. Using the aufbau principle in which block can k (z = 19) be placed in the periodic table?

76. Why is the Electron affinity of Be and Mg endothermic in nature?

77. How many electrons are in the same and opposite spin in an atom fo silver?

(Atomic Number of Silver = 47)

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