CHEMISTRY

BOOKS - V PUBLICATION

PERIODIC TABLE AND ELECTRONIC CONFIGURATION

Question Bank

1. Based on the hints given, find out the atomic numbers and write down the subshell

electronic configuration of elements (Symbol and not real)

i) A - period 3, group 6

ii) B - period 4, group 6

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2. When the last electron of an atom was filled in the 3d subshell, the subshell electron configuration was $3d^8$. Answer the questions related to third atom.

i) Complete subshell electronic configuration

ii) Atomic number

iii) Block

iv)Period number

v) Group number

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3. Pick out the wrong subshell electronic configuration from those given below?

a) $1s^2 2s^2 2p^7$

b) $1s^2 2s^2 2p^2$

c) $1s^2 2s^2 2p^6 3s^1$

d) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^2 4s^1$

e) $1s^2 2s^2 2p^6 3p^6 3d^2 4s^2$

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4. The element X in group 17 has 3 shells. If so: What will be the chemical formula of the compound formed if the element X reacts with element Y of the third period which contains one electron in the p subshell?

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5. The element Cu with atomic number 29 undergoes chemical reaction to form an ion with oxidation number +2.

a) Write down the subshell electronic configuration of this ion?

b) Can this element show variable valency? Why?

c) Write down the chemical formula of one compound formed when this elemrnt reacts with chlorine (Cl_{17})

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6. Certain subshells of an atom are given below. 2s,2d,3f,3d,5s,3p: Which are the subshells that are not possible? Give the reason.

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7. Prepare a comprehensive table which indicates the name, symbol, electronic configuration, subshell configuration of elements having atomic number 1 to 10

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8. Some information related to the elements of the p block in the 17th group of the periodic table are given in the table below. Complete the able and analyse the following questions.

a) What is the family name of element belonging to 17th group?

b) what is their common valency?

c) Which element has the highest electronegativity?

d) Which element has highest ionisation

energy?

e) List out the name and chemical formula of the compounds formed by this elements with s block elements.

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9. s and p block elements are called

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10. Choose the subshell which is not possible?

1s, 2d, 3s, 2p, 4f

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11. Which element has the highest ionisation energy?

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12. Find the relation and fill the blanks.

M shell : s, p, d subshells

K shell :

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13. Which one of the following belongs to the f block elements?

(Non metals, transition metals, Alkali metals, Lanthanoids)

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14. How many 's' subshell electrons are present in $1s^2, 2s^2, 2p^6, 3s^2, 3p^2$

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15. Choose the correct statement from the following.

a) Zn is the least reactive element.

b) 17^th group elements are called halogens.

c) All shells possess d subshells.

d) f block elements are known as transition elements.

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16. Find the oxidation state of iron in $FeCl_3$.

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17. The atomic number of an element is 20. Then write its subshell electronic configuration.

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18. ..... block includes metals and nonmetals.

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19. The atomic number of an element is 23. Write the subshell electronic configuration and find the group period and block of the element?

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20. CuCl and $CuCl_2$ are the two different chlorides of copper.

a) Find the oxidation state of copper in each of these compounds.

(Hint : Oxidation state of chlorine is -1)

b) Write any two characteristics of the block in which copper belongs to?

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21. Choose the incorrect statement which is suitable to 'd' block elements.

a. form coloured compounds.

b. Larger size across the period.

c. Show various oxidation states.

d. They are metals.

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22. The atomic number of two elements are given below. $Si-14$ $Ni-28$: Write the

subshell electronic configu- I ration of these elements.

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23. Subshell elctronic configuration of an element 'X' is given. $1s^2 2s^2 2p^6 3s^2 3p^6 3d^3 4s^2$

a. Findout the block in which x is included?

b) Represent the subshell electronic configuration in 'x' by using the symbol of noble gas preceding it.

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24. $FeCl_2$ and $FeCl_3$ are two compounds of iron

a) Findout the oxidation state of iron in $FeCl_2$ and $FeCl_3$.

b) Why does iron shows different oxidation state?

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25. The characteristics of some elements are given below. Classify it as s and p bock

elements.

A) Low ionization energy

B) Oxides and hydroxides are basic in nature.

C) Reactivity decreases as down to the group.

D) Reactivity increases down to the group.

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26. a) Write the electronic configuration of chromium Cr_{24} and copper

b) Which type of elements is possible for the electronic configuration [Ar] $3d^2 4s^2$

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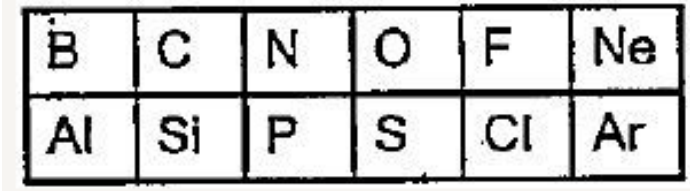
27. A part of periodic table is given

a) Which element has low ionization energy?

b) Which element has higher ionization energy?



B	C	N	O	F	Ne
Al	Si	P	S	Cl	Ar

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28. The last electron of an element is filled in the $3d^2$ subshell. Then find the following.

a) Atomic number

b) Group, period Block

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29. The subshell electronic configuration of some elements are given below.

a) $[Ne]3s^2$ b) $[Ne]3s^23p^4$ c) $[Ar]3d^54s^1$

1) Which elements possess greater metallic

character?

2) Which element is included in the d block?

3) Which element belongs to $16^{t}h$ group?

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30. An atom has three shells and there is 6 electrons in the outermost subshell of the atom.

Answer te following.

a) Which is the element?

b) Write the common oxidation state of its

compounds.

c) Is it metal or non-metal?

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31. a) write the name of any two transition elements.

b) Transition elements form colored compounds.Why?

c) Write a characteristic of transition elements.

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32. The subshell configuration of P,Q and R are given (Symbol are not real)

$P - 1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$

$Q - 1s^2 2s^2 2p^6 3s^2 3p^5$

$R - 1s^2 2s^2 2p^6 3s^2 3p^5 4s^2 3s^1$

a) Find the incorrect subshell electronic configuration.

b) Which is the most electronegative element?

c) Does P and Q can form ionic compoun? Justify your answer.

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33. The outermost electronic configuration of A is $2s^2 2p^2$ (Symbols are not real)

a) Find the group number, block of this element.

b) Write the chemical formula of the compound obtained by the reaction of A and chlorine.

c) Write down the complete subshell electronic configuration of the element coming just below A in the same group of the periodic table?

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34. The subshell electronic configuration of some elements are given below. Analyse it and answer the following questions.

$P - 1s^2 2s^2 2p^6 3s^2$

$Q - 1s^2 2s^2 2p^5$

$R - 1s^2 2s^2 2p^6 3s^2 3p^6 3d^3 4s^2$

$S - 1s^2 2s^2 2p^6$

a) Which of the elements belong to the same period?

b) Which is the inert gas? Why?

c) Write any two characteristics of the element R.

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35. The atomic number of four elements are given.

p - 17, Q - 19, R- 21, S - 10

a) write the complete subshell electronic configuration of P

b) Which one is the inert gas?

c) Identify the d block element

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36. The outermost electronic configuration of an element is $3s^2 3p^4$

a) Find the atomic number of this element.

b) Write down the group in which this element belongs to?

c) Write down the outermost subshell elctronic configuration of the inert gas which belongs to the same period of the given element.

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37. Iron is a transition element. Iron combines with chlorine to form the compounds $FeCl_2$ and $FeCl_3$.

(Hint : Oxidation state of chlorine Cl = -1 , Atomic number of Fe = 26)

a) Write down the oxidation states of Fe in $FeCl_2$ and $FeCl_3$.

b) Write the subshell electronic configuration of both of the irons in $FeCl_2$ and $FeCl_3$.

c) Give reasons for the different oxidation states of Fe.

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38. The subshell electonic configuration of some elements are given below. (Symbols are not real)

$P - 1s^2 2s^2 2p^3$

$Q - [Ar] 3d^3 4s^2$

$R - 1s^2 2s^2 2p^6$

$S - 1s^2 2s^2 2p^6 3s^1$

a. Which of these elements can form coloured compound?

Which elements are included in the same

block?

c. Identify the inert gas.

d. Write the chemical formula of the compound formed by the reaction of P and S.

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39. Choose the correct statement which is suitable to f block elements.

a. The last electrons are filled up in the antipenultimate shell.

b. High electronegativity.

c. Used as a fuel in nuclear reactors.

d. Can form coloured compounds.

e. Uses as a catalyst in petroleum production.

f. Show various oxidation states.

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40. Two compounds of iron are given.

$FeSo_4, Fe_2(SO_4)_3$

(The oxidation state of $SO_4 - 2$)

a. Identify the compound in which iron shows

+2 oxidation state.

b. Which of these compound posses Fe^3+ ions.

c. write the subshell electronic configuration of Fe^3+ ions

d. Give reason for the various oxidation states of transition elements.

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41. There are 4 shells in the element X. The 3d subshell of X contains 6 electrons.

(symbol is not real)

a. Write down the complete subshell electronic configuration of X.

b. Identify the Group and block.

c. Write two characteristics of the elements in which X is included?

d From which subshell does this element loses its electrons to show +2 oxidation state?

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42. The subshell electronic configuration of A,B,C and D are given below.

$A - 1s^2 2s^2 2p^6 3s^2 3p^4$

$B - 1s^2 2s^2 2p^6 3s^2$

$C - 1s^2 2s^2 2p^6 3s^2 3p^5$

$D - 1s^2 2s^2 2p^6 3s^1$

a. Which of these elements can show +2 oxidation state?

b. Which element belongs to 17th group?

c. Find the period of elements A what is the basis of this finding?

d. Which of these elements can form oxides of basic character?

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43. There are subshells in shell around the nucleus?

a. What is the number of electrons that can be accmodated in d shell?

b. Write the possible subshells in 3rd shell in the increasing order of energy.

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44. The atomic number of an element is 19.

a. Write the subshell electronic configuration.

b. Find the group, period and oxidation state of this element.

c. Write any pecularity of the block in which this element belongs to?

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45. Some elements and its subshell electronic configurations are given below.

a. Which element has higher ionization energy?

b. Which element has higher

electronegativity?

c. Find the block and period of element R.

d. Which elements are included in the same group?

Element	Subshell electronic configuration
P	$1s^2\ 2s^1$
Q	$1s^2\ 2s^2\ 2p^5$
R	$1s^2\ 2s^2 2p^6 3s^1$
S	$1s^2\ 2s^2 2p^6$

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46. Assess the properties of elements and classify it as p and d block elements.

• form coloured compounds

• includes metals and non-mentals.

•show various oxidation states.

• The last electrons are filled in the outermost shell.

• show similar properties, in periods.

•The last electrons are filled in the shell preceding the outermost shell.

•Only metals are included.

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47. The atomic numbers of X and Y are 11 and 7 respectively.

a. Write the subshell electronic configuration of an X and Y.

b. Find the group and period in which X and Y are included.

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48. Write the correct order of filling elements in the subshell.

4s 3d 2p 3s 2s 1s 3p 4p

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49. Find the relation and fill the blanks

Copper sulphate : Blue

Ferrous sulphate : .....

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50. All noble gases except helium contains ..... electrons in its outermost shell.

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51. How many electrons can be accomodated in the f subshell?

(10,6,14,7)

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52. The subshell electronic configuration of A is given in two different ways. Find the correct method.

$i) 1s^2 2s^2 2p^6 3s^2 3p^6 3d^1$

$ii) 1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$

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53. The atomic number of Fe is 26. When Fe reacts with oxygen, ions with +3 oxidations states are formed.

(Valency : Oxygen =2)

a) Write the chemical formula of this compound.

b) Write down the subshell electronic fonfiguration of $Fe^{3}+$.

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54. The element 'Y' shows +2 & +3 oxidation states.

a. Which will be the possible block in which Y is included.

b. Write the chemical formula of any chlorides of Y.

(Hint : Valency of chlorine -1)

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55. There are 7 electrons in the 3rd shell of an element.

a. Write its subshell electronic configuration.

Find the block and group in which this element is included.

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56. Complete the table

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57. The outermost subshell electronic configuration of an element is $3s^2 3p^4$. Answer the following questions.

a) Write the complete subshell electronic configuration.

b) Find the valency of this element?

c) Is it metal or non-metal? Give reason.

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58. When the element Fe with atomic number 26 undergo chemical reactions, ions with +3 oxidation state are formed.

a) Write the subshell electronic configuration of Fe.

b) Write the subshell electronic configuration of the ions formed during chemical reactions.

c) Does the element show various oxidation states. Why?

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59. Analyse the table and answer the following questions.

a) Write the subshell electronic configuration of S and identify its block.

Identify the inert gas.

c) Which element is included in the s block.

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60. Analyse the given subshell electronic configurations and answer the questions (Symbols are not real)

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

$B - [Ne]3s^2$

$C - [Ar]4s^1$

$D - [Ar]4s^2 3d^2$

a. Which element has higher electronegativity?

b. Which element shows various oxidation states?

c. Write the total number of p electrons in the

element C.

d. Which element has ionization energy?

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61. Complete the table.

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