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## Chemistry Class - 11: Chapter – 3. Classification of Elements and Periodicity in Properties - Part 3

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### Question: 12

Comprehension given below is followed by some multiple choice questions. Each question has one correct option. Choose the correct option.

In the modern periodic table, elements are arranged in order of increasing atomic numbers which is related to the electronic configuration. Depending upon the type of orbitals receiving the last electron, the elements in the periodic table have been divided into four blocks, viz,  $s$ ,  $p$ ,  $d$  and  $f$ . The modern periodic table consists of 7 periods and 18 groups. Each period begins with the filling of a new energy shell. In accordance with the Aufbau principle, the seven periods (1 to 7) have 2, 8, 8, 18, 18, 32 and 32 elements respectively. The seventh period is still incomplete. To avoid the periodic table being too long, the two series of  $f$ -block elements, called lanthanoids and actinoids are placed at the bottom of the main body of the periodic table.

(a) The element with atomic number 57 belongs to

- (i)  $s$  – block
- (ii)  $p$  – block
- (iii)  $d$  – block
- (iv)  $f$  – block

(b) The last element of the  $p$ -block in 6<sup>th</sup> period is represented by the outermost electronic configuration.

- (i)  $7s^2 7p^6$
- (ii)  $5f^{14} 6d^{10} 7s^2 7p^0$
- (iii)  $4f^{14} 5d^{10} 6s^2 6p^6$
- (iv)  $4f^{14} 5d^{10} 6s^2 6p^4$

(c) Which of the elements whose atomic numbers are given below, cannot be accommodated in the present set up of the long form of the periodic table?

- (i) 107
- (ii) 118
- (iii) 126

(iv) 102

(d) The electronic configuration of the element which is just above the element with atomic number 43 in the same group is \_\_\_\_\_.

(i)  $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^2$

(ii)  $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^3 4p^6$

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

(iv)  $1s^2 2s^2 2p^6 3s^2 3p^6 3d^7 4s^2$

(e) The elements with atomic numbers 35, 53 and 85 are all \_\_\_\_\_.

(i) Noble gases

(ii) Halogens

(iii) Heavy metals

(iv) Light metals

**Answer: (a) (iii) , (b) (iii) , (c) (iii) , (d) (i) , (e) (ii)**

### Question: 13

Electronic configurations of four elements A, B, C and D are given below:

(A)  $1s^2 2s^2 2p^6$

(B)  $1s^2 2s^2 2p^4$

(C)  $1s^2 2s^2 2p^6 3s^1$

(D)  $1s^2 2s^2 2p^5$

Which of the following is the correct order of increasing tendency to gain electron?

(i)  $A < C < B < D$

(ii)  $A < B < C < D$

(iii)  $D < B < C < A$

(iv)  $D < A < B < C$

**Answer: (i)**