**Karan Arora**  **R.L. Institute M :9416974837**

**Max Time : 1 hr** **Classification of Elements – 3 Max Marks : 30**

**CODE : A**

1. Correct order of ionization enthalpies is :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Zn < Cd < Hg | b) Cd < Hg < Zn | c) Na > Cs > Rb | d) Cs < Rb < Na |

1. Which of the following sets of atomic numbers belong to that of alkali metals ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) 1, 12, 30, 4, 62 | b) 37, 19, 3, 55 | c) 9, 17, 35, 53 | d) 12, 20, 56, 88 |

1. The smallest ion among the following is:

|  |  |  |  |
| --- | --- | --- | --- |
| a) Na+ | b) Al3+ | c) Mg2+ | d) Si4+ |

1. The element with atomic number 51 exists in :

|  |  |  |  |
| --- | --- | --- | --- |
| a) s-block | b) d-block | c) p-block | d) f-block |

1. An atom with electronic configuration 1s2 2s2 2p6 3s2 3p6 3d3 4s2 can be placed in a group.

|  |  |  |  |
| --- | --- | --- | --- |
| a) fifth | b) fifteenth | c) second | d) third |

1. Which has the least first ionization enthalpy (I.E1) ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) H | b) He | c) Xe | d) Li |

1. For the electron affinity of halogens which of the following is correct ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Br > F | b) F > Cl | c) Br > Cl | d) F > I |

1. The electronic configuration of the atom having maximum difference in first and second ionization enthalpies is :

|  |  |  |  |
| --- | --- | --- | --- |
| a) 1s2 2s2 2p6 3s1 | b) 1s2 2s2 2p6 3s2 | c) 1s2 2s2 2p6 | d) 1s2 2s2 2p3 |

1. Identify the correct order of the size of the following :

|  |  |
| --- | --- |
| a) Ca2+ < K+ < Ar < Cl – < S2- | b) Ar < Ca2+ < K+ < Cl – > S2- |
| c) Ca2+ < Ar < K+ < Cl – < S2- | d) Ca2+ < K+ < Ar < S2- < Cl – |

1. Which two elements in the periodic table would you expect to combine in the most violent fashion ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) H & O | b) Mg & N | c) P & O | d) Cs & F |

1. Element with atomic number (Z = 56) belongs to :

|  |  |  |  |
| --- | --- | --- | --- |
| a) p-block | b) d-block | c) f-block | d) s-block |

1. What would be the IUPAC name for the element with atomic number 120 ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Ununbium | b) Unnilbium | c) Ununtrium | d) Unbinilium |

1. Which of the following ion has the electronic configuration (Ar) 3d6 ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Ni3+ | b) Mn2+ | c) Fe3+ | d) Co3+ |

1. The first ionization potential of Na is 5.1 eV. The value of electron gain enthalpy of Na+ ion will be :

|  |  |  |  |
| --- | --- | --- | --- |
| a) + 2.55 eV | b) – 2.55 eV | c) – 5.1 eV | d) – 10.2 eV |

1. The species Ar, K+ and Ca2+ contain the same number of electrons. In which order do their radii increase?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Ca2+ < K+ < Ar | b) K+ < Ar < Ca2+ | c) Ar < K+ < Ca2+ | d) Ca2+ < Ar < K+ |

1. Among Mg, Mg2+, Al and Al3+ which will have the largest and smallest size respectively.

|  |  |  |  |
| --- | --- | --- | --- |
| a) Mg, Al3+ | b) Al3+ , Mg | c) Mg2+, Al | d) Al, Mg2+ |

1. Which one of the following order is correct for the bond dissociation enthalpy of halogen molecules ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Br2 > I2 > F2 > Cl2 | b) F2 > Cl2 > Br2 > I2 | c) I2 > Br2 > Cl2 > F2 | d) Cl2 > Br2 > F2 > I2 |

1. The element Z = 114 has been discovered recently, It will belong to which of the following family group and electronic configuration ?

|  |  |
| --- | --- |
| a) Halogen family, [Rn] 5f 14 6d10 7s2 7p5 | b) Carbon family, [Rn] 5f 14 6d10 7s2 7p2 |
| c) Oxygen family, [Rn] 5f 14 6d10 7s2 7p4 | d) Nitrogen family, [Rn] 5f 14 6d10 7s2 7p6 |

1. Which of the following oxides is most acidic ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) MgO | b) BeO | c) BaO | d) CaO |

1. The correct order of atomic radii in group 13 elements is

|  |  |  |  |
| --- | --- | --- | --- |
| a) B < Al < In < Ga < Tl | b) B < Al < Ga < In < Tl | c) B < Ga < Al < Tl < In | d) B < Ga < Al < In < Tl |

1. In the P3-, S2- and Cl – ions, the increasing order of size is :

|  |  |  |  |
| --- | --- | --- | --- |
| a) S2- < Cl – < P3- | b) Cl – < S2- < P3- | c) S2- < P3- < Cl – | d) P3- < S2- < Cl – |

1. Which of the following grouping represents a collection of isoelectronic species? (At. no; Cs = 55, Br = 35)

|  |  |  |  |
| --- | --- | --- | --- |
| a) Ca2+ , Cs+ , Br | b) Na+ , Ca2+ , Mg2+ | c) N3-, F –, Na+ | d) Be , Al3+ , Cl – |

1. Which of the following processes involves absorption of energy?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Cl + e – → Cl – | b) O – + e – → O 2– | c) O + e – → O – | d) S + e – → S – |

1. Of the following pairs, the one containing example of metalloid elements in the periodic table is

|  |  |  |  |
| --- | --- | --- | --- |
| a) Na & K | b) F & Cl | c) Cu & Hg | d) Si & Ge |

1. The general outer electronic configuration of transition metal is:

|  |  |  |  |
| --- | --- | --- | --- |
| a) ns2 nd1-10 | b) ns2 np1 (n-1)d1-10 | c) ns2 np6 (n-1)d1-10 | d) ns0-2 (n-1)d1-10 |

1. Screening effect is not observed in

|  |  |  |  |
| --- | --- | --- | --- |
| a) He+ | b) Li2+ | c) Be3+ | d) in all the three |

1. The diagonal partner of element B is

|  |  |  |  |
| --- | --- | --- | --- |
| a) Li | b) Al | c) Si | d) Mg |

1. The order of decreasing negative electron gain enthalpy of O, S, Se is

|  |  |  |  |
| --- | --- | --- | --- |
| a) O > S > Se | b) S > O > Se | c) Se > O > S | d) S > Se > O |

1. The group of elements in which the differentiating electrons enters the ante-penultimate shell of atoms are called

|  |  |  |  |
| --- | --- | --- | --- |
| a) f-block elements | b) p-block elements | c) s-block elements | d) d-block elements |

1. The outermost electronic configuration of the most electronegative element is

|  |  |  |  |
| --- | --- | --- | --- |
| a) ns2 np3 | b) ns2 np4 | c) ns2 np5 | d) ns2 np6 |

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**Max Time : 1 hr** **Classification of Elements Max Marks : 30**

**CODE : B**

1. An atom with electronic configuration 1s2 2s2 2p6 3s2 3p6 3d3 4s2 can be placed in a group.

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| --- | --- | --- | --- |
| a) fifth | b) fifteenth | c) second | d) third |

1. Which two elements in the periodic table would you expect to combine in the most violent fashion ?

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| --- | --- | --- | --- |
| a) H & O | b) Mg & N | c) P & O | d) Cs & F |

1. The species Ar, K+ and Ca2+ contain the same number of electrons. In which order do their radii increase?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Ca2+ < K+ < Ar | b) K+ < Ar < Ca2+ | c) Ar < K+ < Ca2+ | d) Ca2+ < Ar < K+ |

1. The correct order of atomic radii in group 13 elements is

|  |  |  |  |
| --- | --- | --- | --- |
| a) B < Al < In < Ga < Tl | b) B < Al < Ga < In < Tl | c) B < Ga < Al < Tl < In | d) B < Ga < Al < In < Tl |

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| a) ns2 nd1-10 | b) ns2 np1 (n-1)d1-10 | c) ns2 np6 (n-1)d1-10 | d) ns0-2 (n-1)d1-10 |

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| --- | --- | --- | --- |
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1. Which of the following sets of atomic numbers belong to that of alkali metals ?

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1. The electronic configuration of the atom having maximum difference in first and second ionization enthalpies is :

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| --- | --- | --- | --- |
| a) 1s2 2s2 2p6 3s1 | b) 1s2 2s2 2p6 3s2 | c) 1s2 2s2 2p6 | d) 1s2 2s2 2p3 |

1. What would be the IUPAC name for the element with atomic number 120 ?

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| --- | --- | --- | --- |
| a) Ununbium | b) Unnilbium | c) Ununtrium | d) Unbinilium |

1. Among Mg, Mg2+, Al and Al3+ which will have the largest and smallest size respectively.

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| --- | --- | --- | --- |
| a) Mg, Al3+ | b) Al3+ , Mg | c) Mg2+, Al | d) Al, Mg2+ |

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| a) MgO | b) BeO | c) BaO | d) CaO |

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| a) Ca2+ , Cs+ , Br | b) Na+ , Ca2+ , Mg2+ | c) N3-, F –, Na+ | d) Be , Al3+ , Cl – |

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| a) O > S > Se | b) S > O > Se | c) Se > O > S | d) S > Se > O |

1. Correct order of ionization enthalpies is :

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| --- | --- | --- | --- |
| a) Zn < Cd < Hg | b) Cd < Hg < Zn | c) Na > Cs > Rb | d) Cs < Rb < Na |

1. Element with atomic number (Z = 56) belongs to :

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| --- | --- | --- | --- |
| a) p-block | b) d-block | c) f-block | d) s-block |

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|  |  |  |  |
| --- | --- | --- | --- |
| a) Br2 > I2 > F2 > Cl2 | b) F2 > Cl2 > Br2 > I2 | c) I2 > Br2 > Cl2 > F2 | d) Cl2 > Br2 > F2 > I2 |

1. The element with atomic number 51 exists in :

|  |  |  |  |
| --- | --- | --- | --- |
| a) s-block | b) d-block | c) p-block | d) f-block |

1. The diagonal partner of element B is

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| --- | --- | --- | --- |
| a) Li | b) Al | c) Si | d) Mg |

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| a) S2- < Cl – < P3- | b) Cl – < S2- < P3- | c) S2- < P3- < Cl – | d) P3- < S2- < Cl – |

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| a) f-block elements | b) p-block elements | c) s-block elements | d) d-block elements |

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| --- | --- | --- | --- |
| a) Br > F | b) F > Cl | c) Br > Cl | d) F > I |

1. Which of the following ion has the electronic configuration (Ar) 3d6 ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Ni3+ | b) Mn2+ | c) Fe3+ | d) Co3+ |

1. Identify the correct order of the size of the following :

|  |  |
| --- | --- |
| a) Ca2+ < K+ < Ar < Cl – < S2- | b) Ar < Ca2+ < K+ < Cl – > S2- |
| c) Ca2+ < Ar < K+ < Cl – < S2- | d) Ca2+ < K+ < Ar < S2- < Cl – |

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**Answers**

**Classification of Elements [CLASS = 11th ]**

**CODE : A CODE : B**

1. d 1. a

2. b 2. d

3. d 3. a

4. c 4. d

5. a 5. d

6. d 6. c

7. d 7. b

8. a 8. a

9. a 9. d

10. d 10. a

11. d 11. b

12. d 12. c

13. d 13. d

14. c 14. d

15. a 15. d

16. a 16. d

17. d 17. c

18. b 18. c

19. b 19. b

20. d 20. d

21. b 21. b

22. c 22. c

23. b 23. a

24. d 24. d

25. d 25. d

26. d 26. a

27. c 27. d

28. d 28. d

29. a 29. b

30. c 30. d