CHEMISTRY

AAKASH INSTITUTE ENGLISH

MOCK TEST 6

Example

1. Which of the following compounds contains both ionic and covalent bonds?

A. CH_2Cl_2

B. $CHCl_3$

C. $NaClO_4$

D. PCl_3

Answer: C

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2. An atom with atomic number 20 is most likely to combine chemically with the atom whose atomic number is

A. 3

B. 11

C. 17

D. 18

Answer: C

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3. Octet rule is not satisfied for which of the following molecules?

A. Cl_2

B. CO_2

C. N_2

D. NO

Answer: D

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4. The ion that is isoelectronic with CO is

A. NO

B. $(O_2)^+$

C. C_2

D. F_2

Answer: A

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5. The formal charge on S atom in the following structure is 

A. $+6$

B. $+4$

C. -4

D. zero

Answer: D

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6. Elements of which of the following sets has the strongest tendency to form anions?

A. N, O and F

B. Ga, In and Te

C. Na, Mg and Al

D. V, Cr and Mn

Answer: D

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7. Which of the following sequence correctly represents the decreasing acidic nature of oxides?

A. NO_2gt CO_2 gtB_2O_3 gt BeO gt Li_2O

B. CO_2gt NO_2 gtB_2O_3 gt BeO gt Li_2O

C. Li_2Ogt BeO gtB_2O_3 gt CO_2 gt NO_2

D. B_2O_3 gt CO_2 gt NO_2gtLi_2Ogt BeO

Answer: A

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8. Element A has 3 electron in the outermost orbit and element B has 7 electrons in the

outermost orbit. The formula of the compound formed between A and B would be

A. A_2B_3

B. A_3B_2

C. A_2B

D. AB_3

Answer: D

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9. Compound of a metal A is M_2O_3 , the formula of its halide is

A. M_3X

B. MX

C. MX_3

D. M_3X_2

Answer: C

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10. As compared to covalent compounds, electrovalent compounds generally possess

A. high melting point and high boiling point

B. low melting point and low boiling point

C. low melting point and high boiling point

D. high melting point and low boiling point

Answer: A

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11. The magnitude of lattice energy of a solid increases if

A. the ions are large

B. the ions are small

C. the ions are of equal size

D. Charges on the ions are small

Answer: B

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12. Which of the following is a hypervalent compound?

A. BF_3

B. Al_2Cl_3

C. SF_6

D. PCl_3

Answer: C

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13. Which of the following is a hypovalent compound?

A. NF_3

B. NH_3

C. BF_3

D. IF_7

Answer: C

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14. Which of the following is an odd electron molecule?

A. CO_2

B. SO_2

C. NO_2

D. AL_2O_3

Answer: C

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15. The lattice energies of the oxides of Mg, Ca, Sr and Ba follow the order

A. $CaO < SrO < BaO > MgO$

B. $CaO > BaO < SrO > MgO$

C. MgO > CaO > SrO> BaO

D. $BaO > SrO > CaO > MgO$

Answer: C

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16. Which of the following is the correct order of bond angle in H_2S, NH_3, BF_3 and SiH_4?

A. $H_2S < NH_3 < BF_3 < SiH_4$

B. $NH_3 < H_2S < SiH_4 < BF_3$

C. $H_2S < NH_3 < SiH_4 < BF_3$

D. $H_2S < SiH_4 < NH_3 < BF_3$

Answer: C

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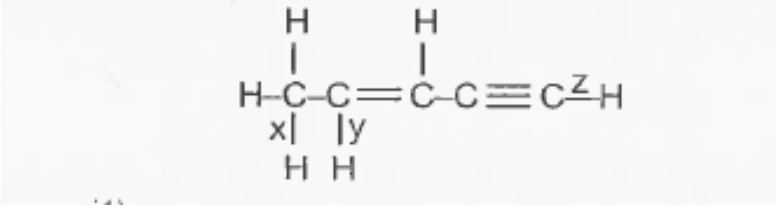
17. Give the correct order of bond lengths x, y and z in 

A. $x = y < z$

B. $x = y > z$

C. x >y >z

D. $z > y > x$

Answer: C

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18. Which of the following statements is/ are correct about lattice enthalpy?

A. Lattice enthalpy affects the solubilities of ionic compounds

B. Stability of an ionic compound depends on its lattice enthalpy

C. Magnitude of lattice enthalpy depends upon both charge and size of ions.

D. All of these

Answer: D

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19. Find out the incorrect order of bond angles

A. (1) $\overset{\oplus}{NO_2} > NO_2 > \overset{\ominus}{NO_2}$

B. $CH_4 > NH_3 > H_2O$

C. $H_2O > H_2S > H_2Se$

D. $NH_3 < PH_3 < AsH_3$

Answer: D

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20. Anhydrous $AlCl_3$ is covalent compound. Select the correct statement regarding $AlCl_3$ based on the given information. Given, the energy to ionise $AlCl_3$ is 5215 kJ mol^{-1} , $\Delta_hydration$ for Al^{3+} is -4670 kJ mol^{-1} and $\Delta_hydration$ for Cl^- is -381 kJ mol^{-1}

A. It will remain covalent

B. It will remain ionic

C. It may or may not be ionic

D. Any molecule being ionic or covalent is independent of ionisation energy

Answer: B

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21. The lattice enthalpy of KI will be, if the enthalpy of

(I) $\Delta_f H^-$ (KI) = -78.0 kcal mol^{-1}

(II) Ionisation energy of K to K^+ is 4.0 eV

(III) Dissociation energy of I_2 is 28.0 kcal

mol^{-1}

(IV) Sublimation energy of K is 20.0 kcal $mol^{-1}(V)$Electron gain enthalpy for I to I^- is -70.0 kcal $mol^{-1}(VI)$Sublimation energy of I_2 is 14.0 kcal $mol^{-1}(1eV = 23.0kcal$mol^-1)`

A. $+14.1kJmol^{-1}$

B. $-14.1kJmol^{-1}$

C. $-141kJmol^{-1}$

D. $+141kJmol^{-1}$

Answer: C

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22. The species which do not support octet rule are (a) H_2O (b) Cl_2O (c) NO (d) SF_5 The correct answer is

A. (a), (b) & (c)

B. (c) & (d)

C. (b), (c) &(d)

D. (b), (d) &(a)

Answer: B

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