**SHAH ABDUL LATIF UNIVERSITY KHAIRPUR**

**INSTITUTE OF CHEMISTRY**

**COMPREHENSIVE VIVA-VOICE**

**FOR Ph.D**

**SESSION 2016-17**

**Time Allowed: 1 hour Date: 31st May, 2017**

1. **Cobalt atom lies in the core of:**

a) Metallo-enzyme b) Vitamin A12

c) Vitamin B12 co-enzyme d) Vitamin E12

2. **A solution has a concentration of 2250μg/L. What is its concentration in ppm?**

a) 225 b) 22.5 c) 2.25 d) 0.225

3. **The compounds absorbing IR frequencies must have:**

a) Covalent bonds b) Ionic Bonds

c) Coordinate covalent bond d) all A, B and C are true

4. **Coordination number of central metal atom in complex [Pt(NH3)2Cl2] is:**

1. 2 b) 4 c) 6 d) 0

**5. What is the oxidation state of chromium in (NH4)2 Cr2O7?**

1. +7 b) +6 c) +5 d) +3

**06. The region of an infra-red spectrum where many absorptions take place is known as the...**

a) thumbprint region b) handprint region

c) footprint region d) fingerprint region

**07. The state of the hybridization of boron atom in boron trichloride is -----------**

a) Sp b) Sp2 c) Sp3 d) 3d2sp3

**08. A conformation in which two atoms are in the same plane but on the opposite side of**

**the bond from which eliminated is**

[(a)](http://chemistry.boisestate.edu/people/richardbanks/organic/mc/vol10/v10_omc1a.htm) Synperiplanar[(b)](http://chemistry.boisestate.edu/people/richardbanks/organic/mc/vol10/v10_omc1b.htm) Cis-diaxial

[(c)](http://chemistry.boisestate.edu/people/richardbanks/organic/mc/vol10/v10_omc1c.htm) trans-diaxial [(d)](http://chemistry.boisestate.edu/people/richardbanks/organic/mc/vol10/v10_omc1d.htm) antiperiplanar

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| **09. What is the total number of sigma bonds found in the following compound?**  **http://chemistry.boisestate.edu/people/richardbanks/organic/mc/vol1/v1_omc4.gif** | | |
|  | 1. 8 b) 10 c) 11 d) 15 |

**10. Which of the following compounds has the most deshielded protons?**

a) CH3Cl b) CH3I c) CH3Br d) CH4

**11. II B sub-group of basic radicals consists of**

(a) As, Cd and Hg (b) Zn, Cd and Hg

(c) Cu, Hg and Au (d) As, Sb and Sn

**12. The correct order for the basic features of a mass spectrometer is...**

a) acceleration, deflection, detection, ionization  
b) ionization, acceleration, deflection, detection

c) acceleration, ionization, deflection, detection

d) acceleration, deflection, ionization, detection

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| **13. Chromatography is used to:**  a) Separate two or more compounds based on their polarities.  b) Separate two or more compounds based on their masses.  c) Separate two or more compounds based on how strongly they interact with other compounds.  d) More than one of the above.  **14 Transition metals are paramagnetic because of----------**   1. Presence of vacant orbitals b) Presence unpaired electron 2. High melting and boiling points d) Malleability and ductility   **15. The** π**-**π**\* transition occur in \_\_\_\_\_\_\_\_ region of light.**   1. Radiofrequency b) Infra Red   c. Microwave d) UV/Visible    16.  **For preparation of 100ml 0.1M solution of Na2C2O4 amount of sodium oxalate is required**  a)13.5g b) 1.3g c) 1.50g d) 67.5g  17.  **Half life time of radioactive element is 6hrs how much amount of it remained after 12hrs**   1. ½ b) 1/6 c) ¼ d) 1/8 2. **Which of the following pairs has the highest difference in their first ionization energy? (a)** Xe, Cs (b) Kr, Rb(c) Ar, K (d) Ne, Na   **19.In** **metal-olefin interaction, the extent of increase in metal ® olefin p-back-donation would**  (a) lead to a decrease in C = C bond length(b) change the formal oxidation state of the metal(c) change the hybridization of the olefin carbon from sp2to sp3.(d) increase with the presence of electron donating substituent on the olefin.  **20. Electron change in reduction of Ce(SO4)2, KMnO4, HNO2 and I2 with hydrazine in acidic medium, respectively is** (a) 1e, 1e, 2e and 4e (b) 1e, 3e, 2e and 4e(c) 2e, 3e, 1e and 4e(d) 2e, 4e, 1e and 3e.  **SHAH ABDUL LATIF UNIVERSITY KHAIRPUR**  **INSTITUTE OF CHEMISTRY**  **Comprehensive FOR Ph.D**  **SESSION 2016**  **KEY** |
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| 1. | **C** |  |  |
| 2 | **B** |  |  |
| 3 | A |  |  |
| 4 | B |  |  |
| 5 | D |  |  |
| 06 | D |  |  |
| 07 | B |  |  |
| 08 | D |  |  |
| 09 | C |  |  |
| 10 | A |  |  |
| 11 | D | 36 | D |
| 12 | A | 37 | C |
| 13 | B | 38 | A |
| 14 | B | 39 | B |
| 15 | B | 40 | B |
| 16 | B | 41 | A |
| 17 | C | 42 | A |
| 18 | D | 43 | C |
| 19 | B | 44 | A |
| 20 | C | 45 | C |
| 13 | B | 46 | A |
| 14 | D | 47 | C |
| 15 | B | 48 | A |
|  |  | 49 | B |
| 16 | B | 50 | C |