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| **PERIODIC TEST - I (2019-2020)** | | | | | |
| **Subject: Chemistry**  **Grade: 11** | | **Max. Marks: 30**  **Time: 1 hr 10 min** | | | |
| **Name:** | | | **Section:** | **Roll No:** | |
| ***General Instructions:***   * ***This question paper consists of 2 printed pages.*** * ***All answers to be written in the answer sheet provided.*** | | | | | |
| 1. | Molality is a better way to express the concentration because mass of solvent is temperature independent. Molarity changes as temperature changes because Volume of solution is temperature dependent. | | | | 1 |
| 2. | When two elements combine to form more than one compound, the mass of one element, which combines with a fixed mass of the other element, will always be ratios of whole numbers. | | | | 1 |
| 3. | For a free electron at rest, Eꚙ = 0. As the electron gets closer to the nucleus En becomes larger in absolute value and more and more negative. | | | | 1 |
| 4. | 12 | | | | 1 |
| 5. | λ = h/mv; in macroscopic objects, the mass is large and therefore the wavelength is so small that it is not observable while the reverse is true for microscopic particles like electrons. | | | | 1 |
| 6. | En = -(2.18 x 10-18 )Z2 / n2  E2 = -(2.18 x 10-18 )22 / 22 =-2.18 x 10-18J  rn = -(0.0529nm) n2 / Z  r2 = -(0.0529nm) 22 / 2 =0.1058nm | | | | ½  ½  ½  ½ |
| 7. | The empirical formula mass of CH₂O = 12 + 2 +16 = 30 u  n=180/30=6  ∴ The molecular formula = (CH₂O)n = (CH₂O)n = C₆H₁₂O₆. | | | | 2 |
| 8. | a) It is impossible to determine simultaneously both the position and momentum of a microscopic particle with certainty.  b) neutron; more the mass, lesser the uncertainty i.e. more accuracy | | | | 2 |
| 9. | Any two limitations of Bohr’s model. | | | | 2 |
| 10. | moles HCl = 0.500 L x M/2 = 0.25 => limiting reactant  moles CO2 = 0.25/2=0.125  Volume CO2 = 0.125 mol x 22.4 L/mol=2.8 L. | | | | 1  1  1 |
| 11. | Formula  E=2.18 x 10-11(1/12 -1/52)  E=2.18 x 10-11(24/25) = 2.09 x 10-11ergs = 2.09 x 10-18J  λ = hc /E= 6.6 x 10-34 x 3 x108  2.09 x 10-18  = 9.474 x 10-8m = 94.74nm | | | | 1  1  1 |
| 12. | Molarity -Formula, substitution and answer with unit; Molarity = 29.53 M  Applying, M1V1 = M2V2  29.53 x V1 = 0.50 x 2.5  V1 = 0.0423 L = 42.3ml Hence, volume of acid required = 42.3 ml | | | | 2  1 |
| 13. | : KE= ½ mv2= 3 x 10-25;  v2 = 6 x10-25/ 9.1 x 10-31 => v = 812 m/s  λ =h/mv = 6.6 x 10-34/9.1x10-31 x 812  = 8.93 x 10-7m | | | | 1  1  1 |
| 14. | a)  b) i) The reagent that is completely consumed in a chemical reaction is called the limiting reagent.  ii) 2H2 + O2 → 2H2 O  ⁖ 80 g of hydrogen will require = 80 × 32 / 4 g of oxygen = 640 g of oxygen  ⸫ oxygen is the limiting reagent.  32 g of oxygen forms = 36 g of water  ⁖ 80 g of oxygen will form = 36 × 80 / 32 = 90 g of water | | | | 2  1  2 |