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| **PT1/CH/1119A 19/05/2019** | | | | | |
| **PERIODIC TEST -I (2019-20)** | | | | | |
| **Subject: CHEMISTRY**  **Grade: XI** | | Max. Marks: 30Time: 1 Hr. 10 Mins | | | |
| **Name:** | | | **Section:** | **Roll No:** | |
| ***General Instructions:***   * ***This question paper consists of 2 printed pages.*** * ***All answers to be written in the answer sheet provided.*** | | | | | |
|  | **SECTION - A** | | | |  |
|  | Insulin contains 3.4% Sulphur. Calculate minimum molecular weight of Insulin. | | | | 1 |
|  | Why is the energy of the electron taken as negative? | | | | 1 |
|  | One mole of any substance contains 6.022 x 1023 atoms/molecules. Number of molecules of H2S04 present in 100 mL of 0.02 M H2S04 solution is \_\_\_\_\_\_\_\_\_\_  (a)12.044 x 1020 molecules (b) 6.022 x 1023 molecules  (c) 1 x 1023 molecules (d) 12.044 x 1023 molecules | | | | 1 |
|  | What will be the mass of one atom of C-12 in grams? | | | | 1 |
|  | Show that the circumference of the Bohr orbit for the hydrogen atom is an integral multiple of the de Broglie wavelength associated with the electron revolving around the orbit. | | | | 1 |
|  | **SECTION-B** | | | |  |
|  | (a) How many moles of nitric acid are there in a 75 mL sample of a 0.60 M solution of nitric acid?  (b) If this sample is made up to 2.0 L in volume, what would the molarity of the solution be? | | | | 2 |
|  | Calculate the energy associated with the first orbit of Li2+. What is the radius of this orbit? | | | | 2 |
|  | An organic compound containing carbon , hydrogen and oxygen gave the following percentage composition : C = 40.687% ; H = 5.085% ; O= 54.228%  The molecular formula is 118. Calculate the molecular formula of the compound. | | | | 2 |
|  | a) Define isoelectronic species?  b) Arrange the given ions according to their decreasing size **:**  N3– , Na+ , Al3+ , O2– , Mg2+ , F– | | | | 2 |
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|  | **SECTION-C** | | | |  |
|  | a) Define Heisenberg Uncertainty principle.  b) In an atom, an electron is moving with a speed of 600 m/s with an accuracy of 0.005%. Certainty with which the position of the electron can be located is: (h=6.6 x 10-34 kg m2s-1; mass of electron, em = 9.1 x 10-31 kg ) | | | | 3 |
|  | a) Which series of lines are the only lines in the hydrogen spectrum which appear in the visible region of the electromagnetic spectrum?  b) Calculate the wave number for the longest wavelength transition in the Balmer series of atomic hydrogen. | | | | 3 |
|  | Copper gives two oxides. On heating 1g of each in hydrogen, we get .888g and 0.798g of the metal respectively. Show that these results agree with the Law of Multiple proportions. | | | | 3 |
|  | What weight of AgCl will be precipitated when a solution containing 14.625g of NaCl is added to a solution of 85g of AgNO3? What is the limiting reagent? (Molar mass of Ag = 108 g/mol) | | | | 3 |
|  | **SECTION-D** | | | |  |
| 14. | a) Volume of a solution changes with change in temperature, then, will the molality of the solution be affected by temperature? Give reason for your answer.  b) How are 0.50 mol Na2CO3 and 0.50 M Na2CO3 different?  c) Calcium carbonate reacts with aqueous HCl to give CaCl2 and CO2 according to the reaction,  CaCO3 (s) + 2 HCl (aq) → CaCl2 (aq) + CO2(g) + H2O(l)  What mass of CaCO3 is required to react completely with 25 mL of 0.75 M HCl? | | | | 5 |

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