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- 12) Describe the Aufbau principle.
- 13) Write the Vander waals equation for a real gas. Explain the correction term for pressure and volume.
- 14) Enthalpy of neutralization is always a constant when a strong acid is neutralized by a strong base account for the statement.
- 15) Give Kelvin statement of second law of thermodynamics.

PART - D

IV. Answer any three questions:

3×5=15

- 16) (i) An organic compound present in vinegar has 40% carbon, 6.6% hydrogen and 53.4% oxygen.
(ii) Find the empirical formula of the compound.
- 17) Explain briefly the principal quantum number and Azimuthal quantum number.
- 18) The quantum mechanical treatment of the hydrogen atom gives the energy value.

$$E_n = \frac{-13.6}{n^2} \text{ eV atom}^{-1}$$

- (i) Use this expression to find ΔE between $n = 3$ and $n = 4$.
- (ii) Calculate the wavelength corresponding to the above transition.
- 19) (i) How many orbitals are possible for $n = 4$?
(ii) Describe about Bohr atom model.
- 20) Suggest and explain an indirect method to calculate the lattice enthalpy of sodium chloride crystal.

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