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**Question Paper Code: 51007**

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

First Semester

Agriculture Engineering

15UCY107 - CHEMISTRY FOR AGRICULTURIST

(Regulation 2015)

Duration: One hour

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

**(Answer any six of the following questions)**

- How are bond length and bond energies related? CO1-U
  - the lower the bond energy, the shorter the bond length
  - the higher the bond energy, the shorter the bond length
  - they are not related
  - the higher the bond energy, the longer the bond length
- Which species contains a  $sp^2$ -hybridized atom? CO1-U
  - $BeH_2$
  - $BH_3$
  - $NH_3$
  - $H_3O^+$
- Hardness in water is expressed in forms equivalent of CO2- R
  - $CaCl_2$
  - $MgCl_2$
  - $CaCO_3$
  - $MgCO_3$
- Calgon is a trade name give to CO2- R
  - Sodium Silicate
  - Calcium phosphate
  - Sodium hexa meta phosphate
  - Sodium Zeolite
- Which of the following metal protects itself forming a positive layer of its own oxide? CO3-R
  - Pt
  - Au
  - Fe
  - Al
- Iron corrodes faster in CO3-U
  - Hard Water
  - Demineralized Water
  - Soft water
  - Distilled Water

7. Which one of the following refers to the nutrient-holding ability of the soil? CO4-U
- (a) alkalinity (b) Cation exchange capacity  
(c) available Water Capacity (d) Nutrient loading
8. Which of the following is a living organism that is part of the biological Nitrogen fixation process? CO4-U
- (a) Nitrosomonas (b) Rhizobium  
(c) nitrogenase (d) leghemoglobin
9. Simplest carbohydrate is CO5- R
- (a) Glucose (b) Sucrose (c) Glyceraldehyde (d) Maltose
10. Sodium bicarbonate is commonly used in cooking as CO5- U
- (a) Alum (b) Baking Powder (c) Baking Soda (d) Cream of Tartar

PART – B (3 x 8= 24 Marks)

**(Answer any three of the following questions)**

11. Describe the Physical and Chemical properties of ionic compounds CO1-U (8)
12. Explain the factors responsible for the corrosion of boiler. Discuss the measures for its Prevention CO2-U (8)
13. Formulate the Nernst equation for the electrode reaction CO3- U (8)
14. Discuss in detail the different types of adsorption isotherm. CO4- U (8)
15. Discuss the manufacturing process of ethanol and acetic acid by fermentation methods. CO5-U (8)