A **Reg. No. :** | | | | | | | | | | | | |

Question Paper Code: U1Y07

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2025

First Semester

Agriculture Engineering

21UCY107 - CHEMISTRY FOR AGRICULTURIST

(Regulation 2021)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The lowest energy orbital is _____ CO1- U

   (a) p-orbital (b) d-orbital (c) s-orbital (d) f-orbital

2. The bond angle between the sp hybrid orbitals is _____ CO1- U

   (a) 90 ° (b) 180 ° (c) 120 ° (d) 109 ° 29'

3. pH for drinking water is _____ CO1- U

   (a) 1-2 (b) 3-4 (c) 7-8.5 (d) 10-12

4. The expansion of EDTA is _____ CO1- U

   (a) Ethylene Diamine Tetra AceticAcid (b) Ethylene Diiodo Tetra Acetylene

   (c) Ethylene Diphenyl Tri Acetic Acid (d) None of These

5. The process of disintegration of rocks is called _____ CO1- U

   (a) weathering (b) tempering (c) cementing (d) annealing

6. The particle size of clay is _____ CO1- U

   (a) 0.001 mm (b) 0.002 mm (c) 0.02 mm (d) 0.0001 mm

7. Proteins are CO1- U

   (a) monomer (b) polymers (c) dimer (d) none of these

8. The blood protein hemoglobin is made up of ___ polypeptide chain. CO1- U

   (a) 1 (b)2 (c) 3 (d) 4

9. Resin containing basic functional group are capable of exchanging their ____ CO1- U

(a) anion (b) cation (c) both a & b (d) none of these

10. Sea water contains _____ ppm of dissolved solids CO1- U

(a) >1000 (b) < 1000 (c) >35000 (d) < 35000

PART – B (5 x 2= 10 Marks)

11. State Pauli's Exclusion principle CO1-U

12. A water sample contains 204 mg of $CaSO_4$ per litre .Calculate the hardness in terms of $CaCO_3$ CO3- Ana

13. Write a note on two types of weathering. CO1- U

14. What is the function of proteins and lipids? CO1-U

15. What is Calgon? How is it functioning in water treatment? CO1-U

PART – C (5 x 16= 80 Marks)

16. (a) How does a chemical bond formed? Explain the types of chemical bonds in NaCl and H_2molecule. CO2- App (16)

Or

(b) Identify the types of hybridization in methane, ethylene and acetylene and explain the reason. CO2- App (16)

17. (a) Analyze the hardness of well water by complexometric titration. CO3- Ana (16)

Or

(b) Identify the method for the removal of cations and anions of hard water? Discuss the various steps involved with suitable diagram. CO3- Ana (16)

18. (a) Write in your own words on the types of rocks? How soils are formed from rocks? Explain two processes involved in soil formation. CO4- App (16)

Or

(b) What would result from the sorption process in soil? List the factors affecting the sorption of soil. CO4- App (16)

19. (a) What are Lipids? How are they classified based on the fatty acids? CO1- U (16)

Or

(b) What are the functions of enzymes? Describe the biochemical reaction of enzymes using lock and key method. CO1- U (16)

20.	(a)	A hotel tea shop boiler gets more corroded due to the continuous usage of hard water. So, how you prevent that boiler by using internal conditioning methods.	CO3- Ana	(16)
		Or		
	(b)	How do you extract desalinated water from brackish water using membrane? Explain the working principle and procedure involved.	CO3- Ana	(16)