



## **BRAINWARE UNIVERSITY**

Term End Examination 2023
Programme – B.Sc.(Ag)-Hons-2021
Course Name – Problematic Soils and their Management
Course Code - CC-BAG401
( Semester IV )

Full Marks : 50 Time : 2:0 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A (Multiple Choice Type Question) 1 x 20=20 Choose the correct alternative from the following: (i) For conversion of P2O5 to P we should multiply % P2O5 with a) 0.53 b) 0.43 c) 0.33d) 0.13 (ii) The signature concept for remote sensing of earth surface related to a) Spectral, spatial and temporal b) Active sensors c) Passive sensors d) None (iii) Aerial photography is defined as a) interprete and mapping of soils b) discuss about the plant anatomy c) describe the soil profile d) discuss the soil analysis (iv) What is the fullform of GIS a) Geological Information system b) Geographic Information system c) Geological Integrated System d) Geographical integrated System (v) pH >8.5, ESP > 15 and EC < 4 related to a) Saline soil b) Alkali soil or sodic soil c) Saline Alkali soil d) Calcareous soil (vi) If the parent material is granite then soils becomes a) Acidic in nature b) Basic in nature c) Neutral in nature d) Calcareous in nature (vii) Which of the following is pH measures a) Active acidity b) Exchangeable or small replaceable acidity c) Residual acidity d) Total acidity (viii) Akiochi disease of rice for toxicity which is below elements a) Sulphide b) sulphate c) Chloride d) Zinc

b) 170

d) 180

(ix) Identify the Calcium carbonate equivalent (or) Neutralizing value (N.V) of CaO is

a) 169

c) 179

(x) In Universal Soil loss Equation \'R\' defines a) Soil erodibility factor b) Slop-length factor c) Slope Gradient d) Rainfall factor (xi) In acid sulphate soils when pH below 4, very active bacteria is a) Thiobacillus thiooxidans b) Thiobacillus ferroxidans c) Thiobacillus denitrificans d) Bacillus (xii) In Universal Soil loss Equation \'S\' defines a) Soil erodibility factor b) Slop-length factor c) Slope Gradient d) Rainfall factor (xiii) Sodicity of irrigation water can be explained by a) Base saturation b) SAR c) AEC d) CEC (xiv) The water erosion which is not noticed by farmer is a) Splash erosion b) Sheet erosion c) Rill erosion d) Gully erosion (xv) Which of the following is called Removal of excess water a) Leaching b) Drainage c) Laterization d) Podzolization (xvi) The movement of soil particles through bounces / jumps is related to a) saltation b) Suspension c) Surface creep d) Ballistic movement (xvii) When the sensing device detects EMR (Electro Magnetic Radiation) originating from another source, primarily from sun is called a) Active Sensing b) Passive sensing c) Both Active and Passive d) EMR sensing (xviii) Which of the following type of wind erosion represents floating of small sized particles in the air stream is a) saltation b) Suspension c) Surface creep d) Diffusion (xix) The abbreviation of NDVI interpretes a) Normalized Difference Vegeatation Index b) Normalized Difference Variety Index c) Normalized Digital Vegetation Index d) Normalized Differentiate Vegetation Index (xx) Gully erosion stages are related to a) Formation b) Development d) All c) Healing Group-B 2.5 x(Short Answer Type Questions) 10=25 2. Explain the Iron or Aluminium ion efefcts in soil acidity (give the reaction) (2.5)3. Discuss the acid soil distribution in India (2.5)4. Explain the term lime requirement (2.5)5. Explain the effect of overliming in the soil (2.5)6. Explain the chemical factors of saline soils (2.5)7. Express the relation between Electrical Conductivity and Osmotic potential (2.5)

9. Estimate the leaching requirement (LR) of an irrigation water having electrical conductivity (2.5)

of 3 ds/m. When electrical conductivity of drainage water is 8 ds/m

11. Evaluate the gypsum is not considered as a Liming material?

(2.5)

(2.5) (2.5)

8. Explain the term SAR

10. Explain the principle of remote sensing

OR

Estimate the CCE value of dolomite

Group-C

(Long Answer Type Questions)

OR

12. Explain the Fe and Mn chemistry of submerged soil

Explain the four reasons of less availability of Zinc in submerged soil

5 x 1=5

(5)

(5)