BRAINWARE UNIVERSITY

Term End Examination 2021 - 22
Programme – Bachelor of Science (Honours) in Agriculture
Course Name – Fundamentals of Soil Science-II
Course Code - CC-BAG277(T)
(Semester II)

Time allotted : 1 Hrs.5 Min. **Full Marks : 50**

[The figure in the margin indicates full marks.]

Group-A

(Multiple Choice Type Question) 1 x 50=50

Choose the correct alternative from the following :

(1) The soil particle size less than <0.001 mm is called

a) Soil Colloid b) Clay

c) Stone d) Boulder

(2) The following element which is behave like polyvalent ion

a) H+ b) Na+

c) Ca +2 d) Mg +2

(3) The term "Colloid" was coined by

a) Thomas graham b) Sorenson

c) Schofield d) Marshall

(4) The continuous rapid zigzag movement executed by a colloidal particle in the dispersion medium is called

a) Brownian movement b) Tyndal effect

c) Plasticity d) Adsorption

(5) The product of decomposition of plant animal residues is called

a) FYM b) Manure

c) Humus d) Paleo hummus

(6) Aggregation or clumping together of individual, timy soil particles is called

a) Flocculation b) Deflocculation

c) Tyndal effect d) Adsorption

(7) Charge development on organic colloids is mainly

a) pH dependent b) pH independent

c) Permanent charge d) Not related to pH

(8) The best example for organic colloid is

a) Humus
b) Kaolinite
c) Montmorillonite
d) Vermiculite

(9) The phenomenon by which replacement or release of an adsorbed ion is called

a) Adsorption
b) Desorption
c) Cohesion
d) Absorption

(10) The particle size which is most important site for cause ion exchange phenomena is

a) 20 microns
b) < 20 microns
c) 2 microns
d) 30 microns

(11) In alkali soil most dominant cation is

a) Ca +2
b) Mg +2
c) Na+
d) Al+3

(12) Unit of CEC

a) mole per lit
b) C mol (p+) kg-1
c) None of them
d) cm3

(13) CEC of Kaolinite mineral (C.mol (P+) Kg-1)

a) 80-100
b) 80-150
c) 3-15
d) 150-300

(14) CEC of Humus (C.mol (P+) Kg-1)

a) 80-100
b) 80-150
c) 3-15
d) 150-300

(15) The components or fractions of humus are

a) Fulvic acid
b) Humic acid
c) Humin
d) All of the above

(16) The humus fraction soluble both in acid and alkali is

a) Fulvic acid
b) Humic acid
c) Humin
d) Hymatomelanic acid

(17) Generally with increase in pH the CEC of soil

a) Increase
b) Decrease
c) No change
d) First decrease later increase

(18) CEC of 2:1 minerals compare to 1:1 minerals is

a) More
b) Less
c) Equal
d) Few 1:1 minerals had more CEC than 2:1 minerals

(19) The total amount of exchangeable anions held by a unit mass of soil, is called

a) AEC
b) CEC
c) Base saturation
d) Deflocculation value

(20) For determination of CEC we prefer

a) Ammonium acetate
b) ammonium hydroxide
c) sodium chloride
d) potassium per manganate

(21) Ammonium and potassium ions are aparently just the right size to fit into the cavities between the crystal units of

a) Montmorillonite
b) Illite
c) kaolinite
d) vermiculite

(22) The pH value which is most conducive for the availability of plant nutrient

a) 6.5-8.5
b) 6.5-9
c) 6.5-7.5
d) 44811

(23) CEC on weight basis highest for

a) Humus
b) Montmorillonite
c) Kaolinite
d) Vermiculite

(24) The following substances which are less complex and less resistant to microbial attack

a) Humic substances
b) Non humic substances
c) Fulvic acid
d) Lignin

(25) Soil structure is more stable when the dominant clay mineral is

a) Montmorillonite
b) illite
c) Chlorite
d) Kaolinite

(26) The minerals in which one tetrahedral sheet and octahedral sheet from the crystal unit is known as

a) 2:1minerals
b) 1:1minerals
c) 2:2minerals
d) trimorphic minerals

(27) The minerals in which two tetrahedral sheet and 1 octahedral sheet form the crystal unit is known as

a) 2:1minerals
b) 1:1minerals
c) 2:2minerals
d) trimorphic minerals

(28) 1: 1 minerals also called

a) Dimorphic minerals
b) Trimorphic minerals
c) Tetra morphic minerals
d) Index minerals

(29) 2:2 minerals also called

a) Dimorphic minerals
b) Trimorphic minerals
c) Tetra morphic minerals
d) Dioctahedral minerals

(30) In kaolinite mineral crystal units are linked with each other by

a) Strong oxygen bonding
b) Weak Hydrogen bonding
c) Strong hydrogen bonding
d) Both hydrogen and oxygen bonding

(31) The Basal spacing (C-axis) of Kaolinite is

a) 7.2 angstrom
b) 8.2 angstrom
c) 14 angstrom
d) 10.25 angstrom

(32) Tha C-axis spacing of Halloysite mostly

a) 7.2 angstrom
b) 8.2 angstrom
c) 14 angstrom
d) 10.25 angstrom

(33) Minerals under smectite group is

a) Montmorillonite
b) Kaolinite
c) Illite
d) vermiculite

(34) Non expanding type of 2:1 mineral is

a) Montmorillonite
b) Kaolinite
c) Halloysite
d) Illite

(35) The following one is not correct regarding Kaolinite mineral

a) Strong Hydrogen Bonding
b) CEC is 3-15
c) C-axis spacing is 10.25 angstrom
d) Dominant in red soil

(36) If the octahedral positions dominated with Al ions which called

a) Dioctahedral Sheet
b) Trioctahedral sheet
c) Tetrahedral sheet
d) Index sheet

(37) Mg rich mineral is

a) Vermiculite
b) Montmorillonite
c) Chlorite
d) Halloysite

(38) When Aluminium is surrounded by 6 oxygen or hydroxyl ions is called

a) Tetrahedral sheet
b) Octahedral sheet
c) Brucite layer
d) Aluminium sheet

(39) Dominant clay mineral in alluvial soils is

a) Illite
b) Montmorillonite
c) nacrite
d) Halloysite

(40) The substance on which getting adsorbed is called

a) Adsorbate
b) Adsorbents
c) Absorbents
d) Absorbates

(41) Dominant salt in alkali or sodic soil

a) $CaCl_2$
b) Na_2CO_3
c) $NaHCO_3$
d) $MgSO_4$

(42) The following mineral do not expand in presence of water

a) Illite
b) Montmorillonite
c) Vermiculite mineral contain soils
d) Halloysite

(43) Langmuir Adsorption Theory describes

a) Adsorption of gases
b) Adsorption of ionic or molecular species
c) Adsorption of trivalent cation
d) Adsorption of divalent cations

(44) Freundlich Isotherm equation is

a) $C/(X/m) = C/Xm + 1/Xm\ K$
b) $x= K\ C^n$
c) $V=Kf$
d) $a=cf$

(45) The theory of BET extends Langmuir derivation to obtain an equation for

a) Multilayer adsorption
b) Monolayer adsorption
c) Double layer adsorption
d) Not related to adsorption

(46) The major source of negative charage on humus colloid

a) Carboxylic (-COOH) group
b) Enolic (-OH) group
c) Phenolic group
d) All the abbove

(47) Which amendment is used for the reclamation of sodic or alkali soils

a) Agricultural lime
b) Gypsum
c) Burned lime
d) Quick lime

(48) Individual fungal filaments are called

a) Hyphae
b) Mycellium
c) Pseudopodia
d) Flagella

(49) Bacteria thriving well within a temperature range of 15-45 0C are called

a) Thermophillic
b) Psychrophillic
c) Mesophillic
d) None of the above

(50) Which of the following groups of plants dopes not form Mycorrhizae

a) Solanaceae
b) Poaceae
c) Leguminosae
d) Cruciferae