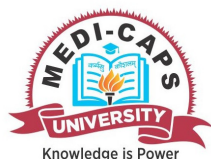


Enrollment No.....



Faculty of Agriculture
End Sem (Odd) Examination Dec-2019
AG3CO03 Fundamentals of Soil Science

Programme: B.Sc. (Ag.) Branch/Specialisation: Agriculture

Duration: 3 Hrs.**Maximum Marks: 50**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

- Q.1 i. A' horizon of the soils also designated as: **1**
 (a) Eluviated horizon (b) Illuviated horizon
 (c) Both (a) and (b) (d) None of these
- ii. _____ studies the way soils influence plants, fungi, and other living things. **1**
 (a) Pedology (b) Edaphology
 (c) Soil structure (d) Soil arrangement
- iii. The relative's percentage of sand, silt and clay in a soil is called **1**
 (a) Soil structure (b) Soil density
 (c) Soil texture (d) Soil purity
- iv. Water that is held by the soil partials at a suction of more than -31 bars **1**
 (a) Gravitational water (b) Capillary water
 (c) Hygroscopic water (d) Available water
- v. A soil which has pH less than 8.5, ESP less than 15 and EC more than 4 mmh/cm is called **1**
 (a) Saline soil (b) Alkaline soil
 (c) Saline-alkali soil (d) None of these
- vi. Adsorbed Ca++, Mg++ or Al++ may encourage soil aggregate formation starting with a process called **1**
 (a) Flocculation (b) Exfoliation
 (c) Soil solarization (d) None of these
- vii. Which one are Non-expanding type minerals? **1**
 (a) Vermiculite (b) Montmorillonite
 (c) Mica (d) Nontronite
- viii. Soil colloidal size is **1**
 (a) < 0.002mm (b) <0.005
 (c) >0.001mm (d) <0.001

- ix. Which one is most dominant micro-organism found in acidic soil? **1**
 (a) Bacteria (b) Fungus (c) Virus (d) Algae
- x. Which of the following are not heavy metals? **1**
 (a) Arsenic (Ar) (b) Cadmium (Cd)
 (c) Lead (Pb) (d) Zink (Zn)

- Q.2 i. Define soil and its different components in brief. **1**
 ii. Write short notes on Pedology and Edaphology. **2**
 iii. What is weathering? Describe the factor affecting of soil formation. **5**
 OR iv. Describe soil profile with diagrammatically in details. **5**

- Q.3 i. Write down any five names of physical property of soil in listed form. **1**
 ii. Difference between soil texture and structure **3**
 iii. Define soil water relationship? How do you increase water retention in soil? **4**
 OR iv. Classify the different types of soil found in India in details. **4**

- Q.4 i. What are different modes of heat transfer in soil? **2**
 ii. Define the following terms: **6**
 (a) Soil -pH (b) Acidity and alkalinity of soil
 (c) Buffering
 OR iii. Define soil acidity. What are the sources of soil acidity? **6**

- Q.5 i. Define cation exchange capacity. **2**
 ii. Define Inorganic and organic colloids with suitable example. **2**
 iii. Explain soil organic matter. What are the factors affecting organic matter in soil? **4**
 OR iv. What do you understand by soil colloids and write its properties and types? **4**

- Q.6 Attempt any two:
 i. Define soil pollution. Explain prevention and mitigation of soil pollution. **4**
 ii. Discuss about soil organisms and their beneficial and harmful effects on soil. **4**
 iii. What is pesticide? Explain the harmful effect of pesticides on soil. **4**

P.T.O.

Marking Scheme
AG3CO03 Fundamentals of Soil Science

Q.1	i.	A' horizon of the soils also designated as:		1
		(a) Eluviated horizon		
	ii.	_____ studies the way soils influence plants, fungi, and other living things.		1
		(b) Edaphology		
	iii.	The relative's percentage of sand, silt and clay in a soil is called		1
		(c) Soil texture		
	iv.	Water that is held by the soil partials at a suction of more than -31 bars		1
		(c) Hygroscopic water		
	v.	A soil which has pH less than 8.5, ESP less than 15 and EC more than 4 mmh/cm is called		1
		(a) Saline soil		
	vi.	Adsorbed Ca++, Mg++ or Al++ may encourage soil aggregate formation starting with a process called		1
		(a) Flocculation		
	vii.	Which one are Non-expanding type minerals?		1
		(c) Mica		
	viii.	Soil colloidal size is		1
		(d) <0.001 mm		
	ix.	Which one is most dominant micro-organism found in acidic soil?		1
		(b) Fungus		
	x.	Which of the following are not heavy metals?		1
		(d) Zink (Zn)		
Q.2	i.	Define soil	0.5 mark	1
		Its different components	0.5 mark	
	ii.	Write short notes on		2
		Pedology	1 mark	
		Edaphology.	1 mark	
	iii.	Weathering(Definition)	2 marks	5
		Factor affecting of soil formation.(Description)	3 marks	
OR	iv.	Describe soil profile	4 marks	5
		Diagrammatically in details.	1 mark	
Q.3	i.	Any five names of physical property(As per answer)	1 mark	1
	ii.	Soil texture	1.5 mark	3
		Structure	1.5 mark	

	iii.	Define soil water relationship	2 marks	4
		Increase water retention in soil	2 marks	
	OR	iv.		
		Different types of soil found in India in details.		4
		(As per explanation)	4 marks	
Q.4	i.	Modes and it's description	2 marks	2
	ii.	Define the following terms:		6
		(a) Soil –pH	2 marks	
		(b) Acidity and alkalinity of soil	2 marks	
		(c) Buffering	2 marks	
OR	iii.	Define soil acidity.	2 marks	6
		Sources of soil acidity	4 marks	
Q.5	i.	Define cation exchange capacity.(As per explanation)		2
			2 marks	
	ii.	Define Inorganic and organic colloids with suitable example.	1 mark	2
			1 mark	
	iii.	Definition soil organic matter.	2 marks	4
OR		Factors affecting organic matter in soil	2 marks	
	iv.	Definition	1 mark	4
		Properties	2 marks	
		Types	1 mark	
Q.6		Attempt any two:		
	i.	Definition	1 mark	4
		Prevention and mitigation	3 marks	
	ii.	Definition	1 mark	4
		Beneficial and harmful effects on soil.	3 marks	
	iii.	Definition	1 mark	4
		Explanation	3 marks	
