Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Agriculture
End Sem Examination Dec 2024
AG3CO35 Manures, Fertilizers & Soil Fertility Management

Programme: B.Sc. (Hons.) 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. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	PO	CO	PSO
Q.1	i.	Which of the following properties makes green manures beneficial for soil health? (a) High nutrient concentration (b) Quick release of nutrients (c) Ability to fix atmospheric nitrogen (d) Contains synthetic fertilizers	**1**	2	4	1	
	ii.	Which of the following is NOT considered bulky organic manure? (a) Farmyard manure (b) Poultry manure (c) Green manure (d) Oil cakes	**1**	2	3	1	
	iii.	Which of the following is a major nitrogenous fertilizer? (a) Urea (b) Muriate of potash (c) Single super phosphate (d) Gypsum	**1**	2	6	2	
	iv.	Which secondary nutrient is essential for plant growth but it is not classified as a primary macronutrient? (a) Nitrogen (b) Phosphorus (c) Potassium (d) Magnesium	**1**	2	4	2	

v.	The inherent capacity of soil to supply all the essential nutrients to plant in suitable quantity and in the right proportion is called..... (a) Soil fertility (b) Soil productivity (c) Soil structure (d) Soil porosity	**1**	1	5	3
vi.	Who is known as the Father of Soil Microbiology? (a) S. N. Winogradsky (b) Robert Boyle (c) J. H. Gilbert (d) Justus Von Liebig	**1**	1	3	3
vii.	Which method is commonly used for soil testing? (a) Titration (b) Soil solarization (c) Soil sampling and laboratory analysis (d) Visual inspection	**1**	2	2	4
viii.	Calcium in soil primarily exists in which form? (a) Soluble calcium (b) Calcium carbonate (c) Calcium sulfate (d) Calcium phosphate	**1**	3	2	4
ix.	Which of the following methods can be used for fertilizer recommendations? (a) Soil test results (b) Crop nutrient requirements (c) Previous crop yields (d) All of these	**1**	1	6	5
x.	Indicator plants are primarily used to..... (a) Enhance soil fertility (b) Diagnose nutrient deficiencies (c) Increase crop yield (d) Prevent pest infestations	**1**	1	4	5

Q.2	i.	What is integrated nutrient management?	**1**	2	7	1
	ii.	Define organic manure and its role in soil fertility.	**2**	1	5	1
	iii.	Write difference between bulky and concentrated organic manure with suitable examples.	**5**	2	2	1
OR	iv.	Write down the difference between manures and fertilizers.	**5**	2	4	1

Q.3	i.	Write down the names of two concentrated organic manures.	**1**	2	7	2
	ii.	What are the beneficial effects of lime?	**3**	2	5	2
	iii.	Define complex fertilizers with their characteristics.	**4**	1	3	2
OR	iv.	What are the principles of good storage of fertilizer at the field level?	**4**	2	6	2
Q.4	i.	Define soil fertility and soil productivity.	**2**	1	4	3
	ii.	Write short note on: (a) Factors influencing nutrient availability to plants (b) Mechanisms of nutrient transport to plants	**6**	2	3	3
OR	iii.	Describe the functions of primary macronutrients and their significance in plant growth.	**6**	3	3	3
Q.5	i.	List three methods of soil fertility evaluation.	**2**	2	5	4
	ii.	Write down the importance of micronutrients in agriculture.	**2**	2	3	4
	iii.	Discuss the forms and availability of potassium in soils.	**4**	3	6	4
OR	iv.	Define soil testing. List its objectives and the steps involved in soil testing.	**4**	1	7	4
Q.6		Attempt any two:				
	i.	Define nutrient use efficiency and discuss the factors influencing it.	**4**	1	5	5
	ii.	Discuss the methods used for fertilizer application under irrigated conditions.	**4**	3	5	5
	iii.	Describe the role of indicator plants. Discuss how they can be used to assess soil health and inform nutrient management practices.	**4**	3	4	5

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Marking Scheme

AG3CO35 - Manures, Fertilizers and Soil Fertility Management

Q.1	i)	c) Ability to fix atmospheric nitrogen	**1**
	ii)	d) Oil cakes	**1**
	iii)	a) Urea	**1**
	iv)	d) Magnesium	**1**
	v)	a) Soil fertility	**1**
	vi)	a) S. N. Winogradsky	**1**
	vii)	c) Soil sampling and laboratory analysis	**1**
	viii)	b) Calcium carbonate	**1**
	ix)	d) All of the above	**1**
	x)	b) Diagnose nutrient deficiencies	**1**
Q.2	i.	What is Integrated Nutrient Management? - 1 Mark	**1**
	ii.	Define organic manure - 1 Mark and its role in soil fertility. - 1 Mark	**2**
	iii.	Write difference between bulky and concentrated organic manure with suitable examples. - 1 Mark for each difference	**5**
OR	iv.	Write down the difference between manures and fertilizers? - 1 Mark for each difference	**5**
Q.3	i.	Write down the names of two concentrated organic manures. -1 Mark	**1**
	ii.	What are the Beneficial effects of lime? – 3 Marks	**3**
	iii.	Define Complex Fertilizers - 1 Mark their characteristics. - 3 Marks	**4**
OR	iv.	What are the principles of good storage of fertilizer at the field level? -4 Marks	**4**
Q.4	i.	Define soil fertility -1 Mark soil productivity. -1 Mark	**2**
	ii.	Write short note on: • Factors Influencing Nutrient Availability to plants - 3 Marks • Mechanisms of nutrient transport to plants - 3 Marks	**6**
OR	iii.	Describe the functions of primary macronutrients - 3 Marks their significance in plant growth. - 3 Marks	**6**
Q.5	i.	List three methods of soil fertility evaluation. - 2 Marks	**2**
	ii.	Write down the importance of micronutrients in agriculture. - 2 Marks	**2**
	iii.	Discuss the forms and availability of potassium in soils. - 4 Marks	**4**
OR	iv.	Define soil testing. - 1 Mark List its objectives – 1 Mark the steps involved in soil testing. - 2 Marks	**4**
Q.6		Attempt any two:	
	i.	Define Nutrient Use Efficiency - 2 Marks discuss the factors influencing it. - 2 Marks	**4**
	ii.	Discuss the methods used for fertilizer application under irrigated conditions. - 4 Marks	**4**
	iii.	Describe the role of indicator plants. - 2 Marks Discuss how they can be used to assess soil health and inform nutrient management practices. - 2 Marks	**4**