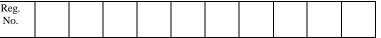
OPC	RA23	BSCA	G108

(j)

Salt-tolerant

Reg.					
No.					



AY - 23



GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, **ODISHA, GUNUPUR** (GIET UNIVERSITY)

B. Sc. (Ag.) (Fourth Semester) Examinations, April - 2025 AC-224- Problematic soils and their Management

Tim	e: 2 hrs	The figures in the right ha	and margin indicat	Maximum : 50 Marks
		PAR	$\mathbf{A}\mathbf{T} - \mathbf{A}$	
Q.1.	Fill in the b	lanks with suitable word / figure.		$(0.5 \times 10 = 5 \text{ Marks})$
b.c.d.e.f.g.	Class I land Conversion The primaryis	is a biological indicator of soil quethe primary cation in gypsum the sin capability classification are the measurement of pollutants into volatile forms is car use of hyperspectral imaging in soil states come under arid and seminal example of acid tolerant crop.	nat aids alkali soil remost for coion in clay colloids lledis to detect soilis agroecologica	ultivation.
Q. 2	. Define (or)	Explain the following in one or two	o sentences.	$(1 \times 5 = 5 \text{ Marks})$
b. c. d.	Phytoremed	liation sing and GIS		
Q3.	. Match the	following		$(0.5 \times 10 = 5 \text{ Marks})$
		Column – A		Column – B
	(a) (b) (c) (d) (e) (f) (g) (h) (i)	Ideal pH range Lime Bicarbonate hazard Near Infra Red Alkali Organic soil pollution physical soil indicator pH<3.5 saline	(i) (ii) (iii) (iv) (v) (vi) (vii) (viii) (ix)	mEq/L Gypsum Cat clay Barley Soil texture Acid sulphate soil Solods 6.5-7.5 Remote sensing

(x) Sewage sludge

Q4. Write True or False against each statement

- $(0.5 \times 10 = 5 \text{ Marks})$
- a. Alkali soils are characterized by high levels of Exchangeable sodium.
- b. Leaching requirement is associated with removing excess salts...
- c. Rill erosion is done by wind agent.
- d. Near infrared electromagnetic spectrum is used for rempote sensing of problematic soil
- e. Primary aim of reclaiming saline soils is to convert agricultural land to industrial use
- f. Acidification is responsible for formation of Sodic soil or alkali soil
- g. Intensive tillage and low organic matter application leads to poor aggregation and soil crusting
- h. The SAR value should ideally be less than <20 for safe irrigation.
- i. Good soil tilth one of the key characteristics of healthy soil.
- j. Leucaena leucocephala is a common MPT used in degraded lands for its nitrogen-fixing ability.

PART - B

Attempt ANY FIVE questions. All question carries equal marks

 $(6 \times 5 = 30 \text{ Marks})$

- 5. Discuss about the causes of soil compaction. Write down the detrimental effect of waterlogging.
- 6. Write down the land capability classes with table format mentioning the colour notation.
- 7. Define the soil acidity. Write down sources and control measures of soil acidity.
- 8. Briefly discuss the physical and chemical constraints of problematic soil
- 9. Explain the mechanism of phytoremediation with diagram.
- 10. Write down the types of water erosion. Elaborate the management practices of saline soil.

--- End of Paper ---