

Technology for utilization of wastelands and weeds

Q. 1 Give short answer

(10)

(P). attempt a-j in alphabetical order ONLY)

- (a) Which of the following determine suitability of organic matter as soil amendment (1)  
(i) pH (ii) Potassium content (iii) Color (iv) Carbon & Nitrogen content
- (b) Which of the following would provide the Sustained source of Nitrogen for plants (1)  
(i) Ammonium sulphate fertilizers (ii) Humus (iii) Urea (iv) All of the above
- (c) Which of the following mineral is not expected to be present in old soils (1)  
(i) Olivine (ii) Quartz (iii) mica (iv) None of the above
- (d) Give reason for your answer above. (1)
- (e) In which of the following, soil structure is damaged (1)  
(i) Saline soils (ii) Acidic soils (iii) Alkaline soils (iv) All of the above
- (f) Flood and drain Irrigation of soils in an arid environment can contribute to which of the following? (1)  
(i) Humification (ii) salinization (iii) overharvesting (iv) calcification
- (g) By increasing the organic matter of soil by 1%, approximately the water holding capacity of soil can be increased by \_\_\_\_\_ L/acre (1)  
(i) 95,000 (ii) 50,000 (iii) 25,000 (iv) 9,50,000
- (h) The rhizobacterial enzyme which degrades cell wall of fungi (1)  
(i) Protease (ii) cellulose (iii) chitinase (iv) amylase
- (i) In the rhizosphere, rhizobacteria is known to produce Indole acetic acid (IAA). Name the precursor of IAA and its source (1)  
(i) L-Phenyl alanine, root exudate (ii) L-tryptophan, other microbes  
(iii) L-tryptophan, root exudate (iv) Tyrosine, Bulk soil
- (j) Rhizobacteria is known to reduce abiotic stress in plants by producing ACC deaminase which decreases the level of \_\_\_\_\_ in plants (1)  
(i) Ethylene (ii) Indole acetic acid (iii) Glucose (iv) Proline

Q.2 Describe the evolution of various soil orders along with their salient characteristics. (4)

Q.3 Describe the characteristics and reasons for formation of saline soils. (2)

Q.4 Answer the following briefly (use diagrams/bar charts to support your answer): 4

- (a) Which techniques were used & how was it proved that RSL4 is present only in root hair cells?
- (b) What ~~concluded~~ that RSL4 is must for root hair development?
- (c) What turns the ~~switch~~ switch on under natural conditions?
- (d) It helps in availability of ~~which~~ nutrient and ~~why~~?