

**Technology for utilization of Wastelands and Weeds**

**Q.1** In this course you learnt about various policies and schemes of the Government towards land reclamation and poverty alleviation. (6)

- Since 1980's what kind of changes happened in delivering these and were these changes helpful?
- What are the constraints in getting maximum benefit out of these interventions?
- If you were an administrator, what will be your strategy to enhance the impact?

**Q.2** (6)

- What in your opinion was unique in the Auroville reclamation story?
- Did they use the same intervention at two sites? Why or why not?
- If this team was asked to reclaim a mining wasteland, what strategy will be followed in your opinion?

**Q.3** (6)

- What did Dokuchaev observe during his journey and why?
- Why is soil said to be Multidimensional, Dynamic and Living?
- What is aging with respect to soils?

**Q.4** Do you think terming Calotropis as weed is justified? Why or Why not? Explain in detail with examples and related information. (6)

**Q.5** Write Note on **ANY TWO (with diagrams)** (6)

- Effect of pH on nutrient availability
- Negative impact of tillage
- Soil forming Factor-Climature

**Q.6** (6)

- How can plants reclaim saline-sodic or sodic soils? What is the mechanism of this process?
- Accordingly, what are the desirable features based on which the suitable plant should be selected? Which soil/plant parameters you can monitor to show improvements through the use of plants?
- Under which conditions plant perform poorly for reclamation of sodic soils? What can be learnt from these observations?

**Q. 7 Select Correct answer** (13)

- Patchy growth of plants is typically found in following soil  
(i) Acidic; (ii) Neutral; (iii) Alkaline; (iv) Saline
- Tilling of the soil should be done at right  
(i) pH; (ii) Moisture content; (iii) Temperature; (iv) Organic content
- Which of the following is the key parameter to judge the suitability of organic additive for soil?  
(i) colour; (ii) C/N ratio; (iii) moisture content; (iv) None of the above
- Which of the following category of water is/are available to plants in soil?  
(i) Hygroscopic; (ii) Gravitational; (iii) Capillary; (iv) All of the above
- Black cotton soils are classified under?  
(i) Mollisols; (ii) Histosols; (iii) Vertisols; (iv) Inceptisols

- (f) The above soils develop from?  
 (i) Organic parent material; (ii) Clay rich mineral parent; (iii) Water saturation; (iv) None of the above
- (g) Biogas production from Calotropis leaves not so advantageous in terms of  
 (i) Biogas slurry; (ii) quality of biogas; (iii) quantity of biogas; (iv) None of the above
- (h) As the Cation Exchange Capacity increases, buffering capacity  
 (i) Decreases (ii) Increases (iii) First increases and then decreases (iv) Remains unaffected
- (i) pH dependent charge is observed in?  
 (i) Alluvial soils (ii) organic soils (iii) Red soils (iv) None of these
- (j) Rocks with high silica content result in  
 (i) Fast weathering & coarse textured soil (ii) Fast weathering & fine textured soil (iii) Slow weathering & fine textured soils (iv) Slow weathering & coarse textured soils
- (k) Denitrification is enhanced under following conditions  
 (i) Aerobic, warm and alkaline; (ii) Anaerobic, warm and acidic; (iii) Aerobic, warm and acidic; (iv) Anaerobic, warm and alkaline
- (l) Virtual drought like conditions develops in?  
 (i) Acidic soils; (ii) Saline soils; (iii) Lateritic soils; (iv) None of the above
- (m) SVI is indicative of the status of soil  
 (i) Volatile organic matter; (ii) Texture; (iii) volumetric water content; (iv) Structure

**Q.8** Explain the reasons for variations in soil organisms population in four ecosystems given in figure below. (6)

