

2023

AGS 4th Semester Examination

B.Sc. Hons. in Agriculture

Problematic Soils and Their Management

PAPER — 404

Full Marks : 50

Time : 2 hours



The figures in the right-hand margin indicate marks.

*Candidates are required to give their answers
in their own words as far as practicable.*

Illustrate the answers wherever necessary.

Answer **all** questions.

1. Answer **any five** questions from the following :

2×5=10

(a) What do you mean by soil quality? Mention the parameters for assessing soil quality.

(b) What do you understand by acid soils?

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(Turn Over)



(2)

- (c) How much area in India is under physical and chemical deterioration?
- (d) Which ions are predominantly present in saline soils?
- (e) "In a sesame field, farmers can use ammonium sulphate as a source of N." Are you against or in support of this statement? Explain.
- (f) Mention the land capability classes suitable for agriculture purpose.
- (g) In alkaline soil, which nutrient toxicity may be observed?
- (h) Mention four salt tolerant crops which can be easily grown in saline soils.

2. Answer any four questions from the following :
5×4=20

(g) Distinguish saline, saline-alkaline and alkaline soils on the basis of pH, EC and ESP.

S S A A
 | < | < 8.5 | <
 | > | < 4 | <
 < < 15 > > 15
 (Continued)

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(3)

- (b) What are the causes of soil pollution? Discuss the control of soil pollution.
- (c) What do you mean by flood reclamation? Discuss the management of compacted soil.
- (d) Briefly discuss the reclamation measures for physically deteriorated soils.
- (e) Write a short note on the management of acid sulphate soils.
- (f) Why is sodic soil known as black alkali soil? Explain.

3. Answer any two questions from the following :
10×2=20

(a) Describe the role of Remote Sensing and GIS in the management of problematic soils. Why does alkaline soil show poor physical property?
6+4=10

(b) Elaborate on biological remediation. Mention the extent of soil acidity in different districts of West Bengal. 6+4=10

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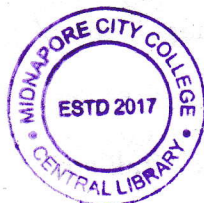
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(4)

(c) How can we reclaim alkaline soil? How much amount of Gypsum is required to reclaim 1 meq Na^+ /ha soil? Define LR. If the EC of irrigation water is 1 ds/m and EC of drainage water is 5 ds/m, calculate the LR. $3+2+2+3=10$

(d) What do you understand by the quality of irrigation water? Discuss about salinity hazard and alkali hazard in irrigation water.

$2+4+4=10$



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