

Reg. No: 

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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**B.Tech II Year I Semester Regular & Supplementary Examinations March-2023**  
**PRINCIPLES OF AGRONOMY & SOIL SCIENCE**

(Agricultural Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- |   |  |     |    |    |
|---|--|-----|----|----|
| 1 | a Explain in detail the different methods of sowing. | CO1 | L2 | 8M |
|   | b What is depth of sowing and time of sowing.        | CO1 | L1 | 4M |

OR

- |   |   |     |    |    |
|---|---|-----|----|----|
| 2 | a Define agronomy, agriculture and tillage.   | CO1 | L1 | 6M |
|   | b Compare sustainable and modern agriculture. | CO1 | L4 | 6M |

**UNIT-II**

- |   |  |     |    |    |
|---|--|-----|----|----|
| 3 | a Define gravitational, capillary and hygroscopic water.   | CO2 | L1 | 6M |
|   | b Draw a flow chart depicting different steps in water movement in soil plant atmospheric continuum. | CO2 | L4 | 6M |

OR

- |   |  |     |    |    |
|---|--|-----|----|----|
| 4 | a Write difference between cropping pattern and cropping system. | CO2 | L4 | 4M |
|   | b Explain weed control by mechanical method.                     | CO2 | L2 | 8M |

**UNIT-III**

- |   |  |     |    |    |
|---|--|-----|----|----|
| 5 | a Differentiate between surface soil and sub soil.     | CO3 | L4 | 6M |
|   | b Write short notes on mica, quartz and clay minerals. | CO3 | L1 | 6M |

OR

- |   |  |     |    |    |
|---|--|-----|----|----|
| 6 | a Categorize soil structure and describe the with suitable diagrams. | CO3 | L3 | 8M |
|   | b Mention and explain the factors affecting bulk density.            | CO3 | L1 | 4M |

**UNIT-IV**

- |   |  |     |    |    |
|---|--|-----|----|----|
| 7 | a Define amorphous clay and CEC.                     | CO4 | L1 | 4M |
|   | b Explain the role organic matter in soil fertility. | CO4 | L2 | 8M |

OR

- |   |   |     |    |    |
|---|---|-----|----|----|
| 8 | a Describe carbon nitrogen ratio in detail. | CO4 | L2 | 8M |
|   | b Explain the types of soil colloids.       | CO4 | L1 | 4M |

**UNIT-V**

- |   |  |     |    |    |
|---|--|-----|----|----|
| 9 | a List out the functions of boron, molybdenum and zinc.            | CO5 | L2 | 6M |
|   | b Differentiate between inorganic fertilizers and organic manures. | CO5 | L4 | 6M |

OR

- |    |   |     |    |    |
|----|---|-----|----|----|
| 10 | a List down the criteria for evolution of irrigation water and explain any six of them. | CO5 | L1 | 6M |
|    | b List down the fertilizers containing phosphorus and explain few of them.              | CO5 | L4 | 6M |

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ADVAANCED INSTITUTE OF ENGINEERING & TECHNOLOGY, PUTTUR

(ALL INDIA)

B.Tech II Year I Semester Regular & Supplementary Examinations March-2023

BRIDGEWORK ON AERONOMY & SOIL SCIENCE

(Agricultural Engineering)

Max. Marks: 80

Time: 3 hours

(Answer all five Units - 5 x 16 = 80 Marks)

UNIT-I

- 1 a Explain in detail the different methods of sowing.
- b What is depth of sowing and rate of sowing?

OR

- 2 a Define secondary agriculture and tillage.
- b Compare subsoil and modern agriculture.

UNIT-II

- 3 a Define gravitational, capillary and hydrostatic water.
- b Draw a flow chart depicting different steps in water movement in soil plant atmosphere system.

OR

- 4 a Write about the law of crop rotation and strip system.
- b Explain weed control by mechanical method.

UNIT-III

- 5 a Differentiate between surface soil and sub soil.
- b Write short notes on ridge, furrow and strip methods.

OR

- 6 a Categorize soil structure and describe any with suitable diagrams.
- b Mention and explain the factors affecting bulk density.

UNIT-IV

- 7 a Define eutrophication and acid O<sub>2</sub>.
- b Explain the role of organic matter in soil fertility.

OR

- 8 a Draw the carbon nitrogen cycle in detail.
- b Explain the use of soil colloids.

UNIT-V

- 9 a List out the functions of boron, molybdenum and zinc.
- b Differentiate between nitrogenous fertilizers and organic manures.

OR

- 10 a List down the criteria for selection of irrigation water and explain any one of them.
- b List down the factors containing phosphorus and explain any one of them.