

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

**B.Tech IV Year I Semester Regular Examinations February-2024**

**GROUND IMPROVEMENT TECHNIQUES**

(Civil Engineering)

**Time: 3 Hours**

**Max. Marks: 60**

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

**UNIT-I**

- |          |   |            |           |           |
|----------|---|------------|-----------|-----------|
| <b>1</b> | <b>a</b> Explain the electro osmosis method to control ground water.              | <b>CO1</b> | <b>L2</b> | <b>6M</b> |
|          | <b>b</b> Explain compaction grouting and penetration grouting with neat sketches. | <b>CO1</b> | <b>L2</b> | <b>6M</b> |

**OR**

- |          |  |            |           |           |
|----------|--|------------|-----------|-----------|
| <b>2</b> | <b>a</b> Explain the objectives of dewatering.     | <b>CO1</b> | <b>L2</b> | <b>6M</b> |
|          | <b>b</b> Explain Post Grout Test with neat sketch. | <b>CO1</b> | <b>L2</b> | <b>6M</b> |

**UNIT-II**

- |          |  |            |           |           |
|----------|--|------------|-----------|-----------|
| <b>3</b> | <b>a</b> Discuss the important formulae used in the improvement of soft clay deposits using stone columns. | <b>CO2</b> | <b>L2</b> | <b>6M</b> |
|          | <b>b</b> Compare vibratory probe compaction and dynamic compaction.  | <b>CO2</b> | <b>L2</b> | <b>6M</b> |

**OR**

- |          |   |            |           |            |
|----------|---|------------|-----------|------------|
| <b>4</b> | Explain various in-situ densification methods for cohesive soils. | <b>CO2</b> | <b>L2</b> | <b>12M</b> |
|----------|---|------------|-----------|------------|

**UNIT-III**

- |          |  |            |           |            |
|----------|--|------------|-----------|------------|
| <b>5</b> | Explain soil-lime reactions. What are the engineering benefits of lime stabilization of soils? | <b>CO3</b> | <b>L2</b> | <b>12M</b> |
|----------|--|------------|-----------|------------|

**OR**

- |          |   |            |           |           |
|----------|---|------------|-----------|-----------|
| <b>6</b> | <b>a</b> What is the necessity of soil stabilization? | <b>CO3</b> | <b>L2</b> | <b>6M</b> |
|          | <b>b</b> Explain the mechanics of soil stabilization. | <b>CO3</b> | <b>L2</b> | <b>6M</b> |

**UNIT-IV**

- |          |  |            |           |            |
|----------|--|------------|-----------|------------|
| <b>7</b> | What do you understand by reinforced earth ? Enumerate the various applications of reinforced earth. | <b>CO4</b> | <b>L2</b> | <b>12M</b> |
|----------|--|------------|-----------|------------|

**OR**

- |          |   |            |           |           |
|----------|---|------------|-----------|-----------|
| <b>8</b> | <b>a</b> Write the advantages and applications of reinforced earth structures with neat sketches. | <b>CO4</b> | <b>L2</b> | <b>6M</b> |
|          | <b>b</b> What are the factors governing the design of reinforced earth walls?                     | <b>CO4</b> | <b>L2</b> | <b>6M</b> |

**UNIT-V**

- |          |  |            |           |            |
|----------|--|------------|-----------|------------|
| <b>9</b> | Explain different functions of geotextiles with neat sketches. | <b>CO5</b> | <b>L2</b> | <b>12M</b> |
|----------|--|------------|-----------|------------|

**OR**

- |           |  |            |           |           |
|-----------|--|------------|-----------|-----------|
| <b>10</b> | <b>a</b> What are geotextiles? Write a note on common nomenclature of geosynthetics. | <b>CO5</b> | <b>L2</b> | <b>6M</b> |
|           | <b>b</b> What are the applications of geotextiles?                                   | <b>CO5</b> | <b>L2</b> | <b>6M</b> |

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