**CE2033 & GROUND IMPROVEMENT TECHNIQUES**

**QUESTION BANK**

**UNIT 1 INTRODUCTION**

**PART-A**

1. What are the major problematic soils
2. What is expansive soils? Give one example?
3. Define Ground improvement.
4. What is compaction? When it is adopted?
5. What is collapsible soils?
6. What are difficulties faced with soft clay?
7. How is loose sand a challenging soil?
8. What is the need for improving the ground?
9. Define dewatering.
10. What is lime column?
11. What is soil reinforcement?
12. How is blasting a ground improvement techniques.
13. What is vibro-compaction? In which soils is it adopted?
14. What is stone column? What are methods of installing a stone column?
15. What are methods of grouting?
16. What are four major applications of geosynthetics?
17. Name any four ground improvement techniques.
18. What is the principles behind electro-Kinetic method?
19. Write the role played by ground improvement in foundation engineering.
20. What are the types of problematic soils?

**PART-B**

1. Explain in detail the role of ground improvement in foundation engineering.

2.Explain what are the various geotechnical problems faced with i)black cotton soil,

ii) laterite soil and iii) alluvial soils.

3.Explain in brief the various methods of ground improvement.

4.Explain the suitability of ground improvement techniques for different types of soil.

5.What are the factors influencing the selection of ground improvement techniques.

6.Write in brief about,

a)Vibro -compaction b)pre-loading c)pre-loading with vertical drains

7.write short notes on

a)dewatering b)heating c)freezing d)lime column

8.write about the following,

a)Soil Reinforcement b)Chemical Stabilization c)Grouting

d)Electro-Kinetic Stabilization

9.Explain in brief what is a stone column and how is it installed.

10.Explain what geosynthetics and what are its applications.

11.Explain types of problematic soils and its characteristics.

**UNIT 2 DRAINAGE AND DEWATERING**

**PART-A**

1. Define dewatering.
2. What is the need for drainage and dewatering.
3. What are the various method of dewatering.
4. How are sumps and ditches used in dewatering.
5. What are the advantages of sumps and ditches in dewatering.
6. What is a well point system.
7. What are the different types of well point systems.
8. When are deep wells used for dewatering.
9. What is the principles behind vacuum dewatering.
10. What is electro-osmosis dewatering.
11. What are various types of drains.
12. Define permeability and seepage.
13. What are the filter requirements of a filler material.
14. Write the formula for determining the flow to a fully penetrating slot in homogeneous deposit.
15. Write the formula for determining the flow to a partially penetrating slot in homogeneous deposit.
16. What are the requirements a drain should safety.
17. Explain the term ‘sensitive clay’.
18. Define deep well drainage.
19. List advantages and disadvantages of dewatering.
20. What are the equipment used for dewatering.

**PART-B**

1.Explain in detail with a neat sketch the method of dewatering using sumps and ditches stating its advantages and disadvantages.

2.Explain in detail the well point system of dewatering

3.What is a deep well? When is it adopted? What are its merits and demerits

4.Explain in brief the principle ,equipment used ,installation and operation and precaution adopted in electro- osmosis dewatering.

5.What are the various components ,stages and methods of drainage? Explain in detail.

6.Compare the various dewatering systems suitability ,uses, merits and demerits.

7.Explain in brief the various steps for designing a dewatering system.

8.Discuss how for ‘dewatering techniques’ will improve the soil condition.

9.Explain vacuum method of dewatering.

10.Define a filter. Discuss the filter requirements.