


Reg.No. 

23203

Velammal College of Engineering and Technology

Viraganoor, Madurai – 625 009
(Autonomous)

B.E. End Semester Examinations November 2023

First Semester
Time : 3 Hours

Regulation 2021
Max. Marks 100

21CH101 - Engineering Chemistry
(Common to All Branches)

Answer ALL Questions
PART-A (10 x 2 = 20 Marks)

1. Predict the drawbacks of oils and greases in boiler water. How will you prevent it?
2. Distinguish between scale and sludge.
3. Mention some effects of size reduction of nanoparticles.
4. Define nanowire and nanotube.
5. What is condensed phase rule?
6. What are composite materials?
7. Outline the requirements of good fuel.
8. Define octane number.
9. Compare primary battery and secondary battery.
10. What are super capacitors?

Part – B (5 x 16 = 80)

11. a) Assume that you are surrounded by sea water. How will you get pure water for drinking? Demonstrate the reverse osmosis process with a neat sketch.

OR

- b) Using the ion exchange resins, describe how demineralized water is obtained? Give the advantages and disadvantages of the process.

12. a) Explain any two methods of preparation of nanomaterials.

OR

- b) Summarize the applications of nanomaterials in various fields.

13. a) Construct and explain the phase diagram of one component system in detail.

OR

- b) Explain in detail the properties and applications of (i) metal matrix (ii) ceramic matrix and (iii) polymer matrix composite.

14. a) Describe the Otto-Hoffman method of coke manufacture and the recovery of various by product.

OR

- b) With a neat diagram of Orsat's apparatus, explain the analysis of flue gas.

15. a) Illustrate the working principle of light water nuclear power plant.

OR

- b) Construct a lead acid battery and explain the discharging and charging reactions occurring in it.