Reg. No. : | E | N | G | G | T | R | E | E | . | C | O | M |

Question Paper Code : 20917

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

First Semester

Civil Engineering

CY 3151 – ENGINEERING CHEMISTRY

(Common to: All Branches (Except Marine Engineering))

(Also common to PTCY 3151 for BE (Part – Time) – (Except Electrical and Electronics Engineering) – Regulations 2023)

(Regulations 2021)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the causes for sludges and scales in the boilers?
2. Differentiate the zeolite process with demineralization technique.
3. Give the distinction between nano materials and bulk materials.
4. Give a brief description about the electrochemical deposition.
5. With an example, write about the one component system.
6. State the salient features of hybrid composites.
7. Write the importance of octane number in the relevant fuel.
8. Give a brief note on the spontaneous ignition temperature.
9. Highlight the important applications of solar cells.
10. Highlight the salient features of microbial fuel cell.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the municipal water treatment in accordance with the break point chlorination.

Or

(b) Explain the treatments involved in boiler feed water by the important internal conditioning aspects.

12. (a) Discuss in a detailed manner about the properties and uses of nanoclusters and nanowires.

Or

(b) Discuss in a detailed manner about the chemical vapour deposition and electro spinning.

13. (a) Elaborate in systematic manner about the construction of a simple eutectic phase diagram.

Or

(b) Elaborate in a stepwise manner about the construction of metal matrix and polymer matrix.

14. (a) Summarize the manufacture of metallurgical coke by the Otto Hoffmann method.

Or

(b) Summarize in a specific manner on the Orsat method for the flue gas analysis.

15. (a) Elaborate in a suitable way about the recent developments in soar cell materials.

Or

(b) Explain in a specific manner on the light water nuclear power plant.