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**Question Paper Code : 60027**

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B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2022

First Semester

Civil Engineering

CY 3151 – ENGINEERING CHEMISTRY

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

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Give a brief note on BOD and COD.
2. Write the reasons for the caustic embrittlement in boilers.
3. Write about the important categories of nano-materials.
4. Give a brief description about the sol-gel principle.
5. State about the requisites of composite materials.
6. Write the concept of hybrid composites.
7. Give a brief note on power alcohol and bio diesel.
8. Write about the spontaneous ignition temperature.
9. List out the important applications of solar cells
10. Give a brief note on the microbial fuel cell.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the process of desalination of brackish water by the reverse osmosis method.

Or

- (b) Write the detailed description about the municipal water treatment process.

12. (a) Write in detail about the preparation of nano-materials by electro spinning technique.

Or

- (b) Explain on the application of nano-materials in electronics and catalysis.

13. (a) Explain the properties and applications of metal matrix composites.

Or

- (b) Explain the properties and applications of polymer matrix composites.

14. (a) Explain the manufacturing method of synthetic petrol by Bergius process.

Or

- (b) Explain the flue gas analysis by the Orsat method.

15. (a) Give the detailed description about the recent development in the solar cell materials.

Or

- (b) Explain the principle and the working process of lithium-ion battery.