Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (AE)/(BT)/(CE)/(CSE)/(Electrical & Electronics Engg.)/(EE)/(ECE)/(Electronics & Electrical Engg.)/(IT)/(Marine Engg.)/(Mechanical Engg.) (2012 to 2017) (Sem.–1,2)

ENGINEERING CHEMISTRY

Subject Code : BTCH-101

M.Code : 54093

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B &C. have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.**
4. **Select atleast TWO questions from SECTION - B & C Each.**

SECTION-A

Answer briefly :

1) Calculate the degrees of freedom for acetylene molecule and water molecule.

2) How is Bohr magneton related to Nuclear magneton?

3) Discuss briefly about differential aeration corrosion.

4) Write a note on coercing colloids.

5) What are polymers reinforced composites?

6) What is the physical significance of extinction coefficient?

7) Write a note on properties of natural gas.

8) Discuss in details about use of alternative solvents in Green Chemistry.

9) What is resonance fluorescence? Give one example.

10) What do you understand by gerade and ungerade orbitals?

SECTION-B

11) Explain with the suitable derivations, what type of rotation-vibration spectrum is obtained for a diatomic molecule, taking it as an anharmonic oscillator.

12) What do you understand by terms spin multiplicity, singlet and triplet states? Explain Jablonski diagram in details.

13) What do you understand by internal conditioning? Explain phosphate and calgon conditioning.

14) Describe ultrasonication and microwave irradiation in Green synthesis with suitable examples.

SECTION-C

15) Write a detailed note on various types of corrosion and various methods used for corrosion control with chemical equations.

16) Write the differences between thermoplastics and thermosetting plastics. Also discuss the differences in methods of their preparations.

17) Write a detailed note on nanoscale materials.

18) Discuss in details the Natural gas treatment processes and Conversion processes.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.