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

Total No. of Questions : 09

B.Tech. (2011 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.**

SECTION-A

1. Answer briefly :

(a) Write a short note on various wavelength shifts shown by organic molecules in UV-Vis spectroscopy.

(b) How can UV spectroscopy distinguish between ethylbenzene and styrene?

(c) Write notes on rocking and wagging vibrations.

(d) What do you mean by Doppler broadening? Give its reasons.

(e) Write in brief about emergence of Green Chemistry.

(f) What is meant by photochemical processes?

(g) Give examples of photochemical processes.

(h) What are coercing colloids? How are they formed?

(i) How will you classify crude oil?

(j) Write about stress corrosions in brief.

SECTION-B

2. (a) Write a detailed note on Fermi Resonance

   (b) Discuss the reasons for shielding and deshielding of protons in PMR. Why are aromatic protons more deshielded than vinylic protons?

3. Write in detailed note on :

   (a) Optical sensors

   (b) Priming and foaming in water.

4. Discuss about alternative solvents in details with examples. Write about ultrasonic radiations in Green synthesis with examples.

5. (a) Write in detail about supramolecular photochemistry.

   (b) Describe about designing of safer chemicals with an example being used on commercial scale.

SECTION-C

6. Elaborate in details with examples about Future perspectives of Chemistry at nanoscale.

7. (a) Differentiate between concentration sell corrosion and differential aeration corrosion.

   (b) What are regular and irregular polymer structures? Discuss the chemistry behind regularity and irregularity of polymer structures.

8. (a) Describe the composition of crude oil, emphasising on hydrocarbon and non-hydrocarbon components present in it.

   (b) Write a note on '*self-assembling nanoscale materials*'.

9. (a) Discuss the chemistry and mechanism of wet corrosion.

   (b) Write a note on '*Mesoscaleself-assemblies*'.

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.