

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Sem.-1st,2nd) (2011 & 2012 Batch)**ENGINEERING CHEMISTRY**

Subject Code : BTCH-101

Paper ID : [A1106]

Time : 3 Hrs.

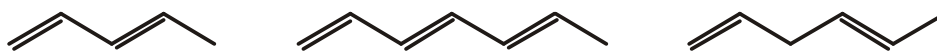
Max. Marks : 60

INSTRUCTION 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**I. Write short notes on :**

- (a) What salts are responsible for temporary and permanent hardness of water?
- (b) What is differential air corrosion?
- (c) Arrange the following in increasing order of UV absorption maxima.



- (d) Name two biodegradable solvents.
- (e) What is number average molecular weight?
- (f) What is photochemistry?
- (g) What is thermal cracking?
- (h) What do you understand by nanotechnology?
- (i) What do you understand by bathochromic and hypsochromic shifts?

(j) Match each absorption band with the following groups:

Functional group	C=O	N-H	-O-H	-C \equiv C-
ν cm ⁻¹	3400	2050	1700	3350

SECTION-B

- Discuss the principles of IR Spectroscopy.
 - What do you understand by chemical shift? (4×2)
- Explain the concept of fluorescence and phosphorescence with the help of well labelled Jablonski diagram.
 - What are optical sensors? (5,3)
- What is priming and foaming? Explain.
 - Discuss the treatment of ground water to be used for domestic purpose. (4×2)
- Explain designing alternative reaction methodology with an example.
 - Explain Green chemistry and its concepts. What are biofuels? (4×2)

SECTION-C

- “Corrosion of tin metal by Chlorine is rapid and excessive but that of silver is not so”*. Why?
 - What do you understand by stress corrosion? Explain. (4×2)
- What is a composite? What are its advantages? Discuss polymer reinforced composites.
 - Discuss the effect of molecular weight on properties of polymers. (4×2)
- Discuss applications of nanomaterials in medicine.
 - Explain self assembling materials and two dimensional assemblies. (4×2)
- Discuss the production of propylene. Give its uses.
 - Explain natural gas treatment processes. (4×2)