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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

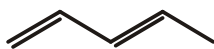
INSTRUCTION TO CANDIDATES :

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

1. 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-
$\nu \text{ cm}^{-1}$	3400	2050	1700	3350

SECTION-B

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

SECTION-C

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