Registration No.: | | | | | | | | | | |

Total Number of Pages: 02 **Course: B.Tech**
Sub_Code: RCH2A002

2nd Semester Back Examination: 2023-24
SUBJECT: CHEMISTRY
BRANCH(S):
AUTO,CIVIL,CSE,CSEAI,CSEAIME,CSEDS,CSIT,CST,ECE,EEE,EIE,ELECTRICAL,ELECTRICAL & C.E,ETC,MANUTECH,MECH,MINING,PLASTIC
Time: 3 Hour
Max Marks: 100
Q.Code: P290

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.
The figures in the right hand margin indicate marks.

Part-I

Q1 **Answer the following questions:** **(2 x 10)**

a) State Lambert Beer's Law.
b) What is Gibb's phase rule?
c) What is CNG?Mention some uses of CNG.
d) What is cathodic protection?
e) What are nanomaterials?
f) What are chromophores?
g) What are eutectic systems?
h) What is synthetic petrol?
i) What is differential aeration corrosion?
j) What is top-down approach?

Part-II

Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** **(6 × 8)**

a) Write the basic concept and postulates of quantum mechanics.
b) Discuss the principles and application of UV-Visible spectroscopy.
c) Explain the effect of conjugation on chromophores with suitable examples.
d) Explain the phase diagram of water system.
e) Write a short note on cathodic protection.
f) Write a short note on gaseous fuels.
g) Write a short note on stress corrosion.
h) Discuss some green synthetic routes for the synthesis of nanomaterials.
i) Give a brief account on the application of nanomaterials in electronic devices and environmental fields.
j) Discuss the classification of fuels.

k) Write a short note on corrosion inhibitors.

l) Explain cracking, knocking, and anti-knocking.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3 Discuss the Lambert Beer's law and its application in UV visible spectroscopy. **(16)**

Q4 What is condensed phase rule? Discuss the phase diagram of eutectic Bi-Cd system. **(16)**

Q5 Define calorific value of fuel. Differentiate between H.C.V. and L.C.V. of the fuel. State and explain Dulong's formula for theoretical determination of calorific value of fuel. **(16)**

Q6 Explain various approaches of nanomaterial synthesis. Give one method of synthesis of nanomaterials via green synthetic route. **(16)**