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Total Number of Pages : 02

B.Tech  
RCH1A002

1st Semester Regular / Back Examination: 2021-22

CHEMISTRY

BRANCH(S): AERO, AG, AME, AUTO, BIOMED,  
BIOTECH, CHEM, CIVIL, CSE, CSEAI, CSEAIME, CST, ECE, EEE,  
ELECTRICAL, ELECTRICAL & C.E, ELECTRONICS & C.E, ENV, ETC, IT,  
MANUTECH, MECH, METTA, MINERAL, MINING, MME, PLASTIC

Time : 3 Hour

Max Marks : 100

Q.Code : OF640

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 : (2×10)

- Write down the Schrodinger wave equation for three dimensional form.
- What are chromophores? Give examples.
- Write the selection rule for rotational spectrum.
- What is the reduced phase rule?
- What is meant by octane number of gasoline?
- What is power alcohol?
- What is meant by knocking?
- Why galvanised utensils are generally not used for cooking?
- What is meant by anodising?
- How do nanoscale dimensions affect properties?

Part-II

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

- Write brief introduction of the vibrational spectroscopy.
- Define and compare the terms triple point and eutectic point.
- Discuss the phase diagram of water system.
- Draw the phase diagram of Bi-Cd system and explain the eutectic point.
- What is calorific value of fuel? Distinguish between gross and net calorific values of fuel.
- Describe proximate analysis of coal.
- What are the features of metallurgical coke?
- Describe the characteristics and applications of LPG.
- Describe the Bergius process for the synthesis of gasoline.
- Explain the cathodic protection given to metals exposed to corroding environment.
- Why a copper equipment should not possess a small steel bolt? Explain
- Write short note on pitting corrosion.

Part-III

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

- Q3 331 What is crude oil? Describe the fractional distillation of petroleum. Mention the industrial uses of fractions. (16)
- Q4 State phase rule and define the terms phase, component and degree of freedom with examples. (16)
- Q5 331 What are the compositions of producer gas? Discuss the large scale preparation of producer gas and mention some of its uses. (16)
- Q6 Describe the mechanism of electrochemical corrosion. Suggest some methods of corrosion control. (16)

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