BTC/BTE 202 Roll No._____

B TECH (CSE/ECE)
END SEMESTER EXAM - II SEM
APR / MAY - 2019
CHEMISTRY - I
CONCEPTS IN CHEMISTRY FOR ENGINEERING

Time: 3 Hrs. **Maximum Marks: 70**

Instructions:

(a) Working Notes should form part of answer copy.
(b) Use of pencil or pen other than blue or black is not permitted.
(c) Do not write your name even if the question is worded in that manner.

SECTION -A **(30 Marks)**

Attempt any 5 questions.
All questions carry equal marks.

Q1. Explain SN^1 substitution reactions. Give suitable example.

Q2. What do you understand by band structure of solids?

Q3. Discuss potential energy surfaces.

Q4. Explain the principle of Calgon conditioning of boiler feed water.

Q5. What are conformers? Illustrate with examples.

Q6. Discuss the Molecular Geometries of CO_2 OR BF_3, on the basis of:

(a) Electron-Group Geometry (b) Bond Angles

(c) Number of bonding Groups (d) Number of unshared electron pairs

SECTION - B **(20 Marks)**

Attempt any 2 Questions.
All Questions carry equal marks.

Q7. Discuss the π-molecular orbitals of butadiene and explain their aromaticity?

Q8. Define the following: Give examples taking the case of CO_2

(a) Critical Temperature (b) Critical pressure

(c) Critical volume (d) Critical state

Q9. Derive the expression for estimations of Gibb's free energy.

SECTION - C **(20 Marks)**
(Compulsory)

QIO. (a) Discuss the Arrhenius and Bronsted Lowry concept of acids and bases citing the advantages and drawbacks of each concept.

(b) Explain crystal field splitting of *d*-orbital into e_g and t_{2g} orbitals.