Seat No:_____ Enrollment No:_____

PARUL UNIVERSITY

FACULTY OF APPLIED SCIENCE

B.Sc., Summer 2017-18 Examination

Semester: 1 **Date: 21/5/2018**
Subject Code: 11100102 **Time: 10:30amt to 1:00pm**
Subject Name: Chemistry-I **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1. A) Answer the following questions
(a) Write a note on quantum numbers **(04)**
(b) Explain Hund's principle giving suitable examples **(04)**

Q.1. B) Answer the following questions (Any two)
(a) 1. Give structural formula for Napthalene and β-Napthol **(02)**
2. Give electron configuration of Cr and Cu and explain its stability **(02)**
(b) Explain polarity of bond and dipole moment **(04)**
(c) Explain Bohr's atomic model and give its limitations. **(04)**

Q.2. A) Answer the following questions.
(a) 1. Define carbocation and carboanion **(02)**
2. Define Resonance with an example **(02)**
(b) Write short note on inductive effect **(04)**

Q.2. B) Answer the following questions (Any two)
(a) Define hybridization. Explain the hybridization in methane **(03)**
(b) Give 3 point of difference between homolytic and heterolytic bond fission **(03)**
(c) Differentiate Configurational Isomers and Conformational isomers **(03)**

Q.3. A) Answer the following questions. (Each of 04 marks) **(08)**
(a) Give 4 points of difference between electrolytic and electronic conductors
(b) Explain law of decay for radioactivity and derive $N=N_0e^{-\lambda t}$

Q.3. B) Answer the following questions (Any two)
(a) 1. Half life time of radioactive element is 6.93 minutes, calculate decay constant. **(02)**
2. Briefly write on average life of radio elements **(02)**
(b) The half life period of yttrium is 20 min. If there are 1000 gm of yttrium present, how much will be left after 30 min? **(04)**
(c) Explain Soddy Fajan's displacement law for radioactive element **(04)**

Q.4. A) Answer the following questions.
(a) 1. Unit for specific conductance is --------- **(04)**
2. Define transference number
3. Define molar conductance
4. Write formula for Phase rule.
(b) Explain phase diagram for one component system: Water **(04)**

Q.4. B) Answer the following questions (Any two)
(a) 1. Define chirality **(03)**
2. Define stereogenic centre.
3. What are radioactive isotopes?
(b) Explain principle quantum number and Azimuthal Quantum number **(03)**
(c) Explain Chain isomerism and position isomerism. **(03)**