

PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
B.Sc., Winter 2017-18 Examination

Semester: 1**Subject Code: 11107104****Subject Name: Basics of Forensic Chemistry****Date: 26/12/2017****Time: 10:30 to 1:00 pm****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. (08)**
- (a) Define hydrogen bond. Explain its types giving suitable examples.
 - (b) Define hybridization. Show hybridization in C_2H_2 and CH_4 .
- Q.1. B) Answer the following questions (Any two) (04)**
- (a) Short note: (04)
 1. What are electrophiles and nucleophiles? Give examples.
 2. State types of chemical bond.
 - (b) Explain van der waals forces with example. (04)
 - (c) State difference between homolytic and heterolytic bond fission. (04)
- Q.2. A) Answer the following questions. (04)**
- (a) State Auf Bau's principle. Write electronic configuration for Cr, Fe and Cu. (04)
 - (b) Define quantum numbers. Explain principle and magnetic quantum numbers. (04)
- Q.2. B) Answer the following questions. (Any two) (03)**
- (a) Define ionization energy. Explain why ionization energy decreases down the group in periodic table? (03)
 - (b) State and explain Hund's rule. (03)
 - (c) Write a note on shape of orbitals. (03)
- Q.3. A) Answer the following questions. (08)**
- (a) Discuss petroleum refining.
 - (b) Draw structure and orbital picture of furan.
- Q.3. B) Answer the following questions. (Any two) (04)**
- (a) Short note: (04)
 1. Define octane number.
 2. Draw structure of pyrrole.
 - (b) Write a note on cracking. (04)
 - (c) Define drug. State uses of analgesic and antibiotics. (04)
- Q.4. A) Answer the following questions. (04)**
- (a) Short note: (04)
 1. Define insecticide.
 2. Define plasticizers.
 - (b) Write a short note on classification of polymers. (04)
- Q.4. B) Answer the following questions. (Any two) (03)**
- (a) Define: (03)
 1. Monomer
 2. Polymer
 3. Copolymer
 - (b) Differentiate between thermoplastic and thermosetting polymers. (03)
 - (c) Write a note on addition polymerization. (03)