PU-003-1104010 Seat No. _____

M. Sc. (Sem. IV) Examination

August - 2020

C(PM)-404 : Physical Chemistry

(Reaction Dynamics and Mechanism) (New Course)

Faculty Code : 003

Subject Code : 1104010

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instruction : (1) All questions are compulsory.
(2) All questions carry equal marks.
(3) Total-70 marks. Each carry 14 marks.

1 Answer the following : (any **seven**)

(a) Define : Antioxidant, Inhibitors, Enzyme, Actionometers.

(b) Explain catalytic promoters.

(c) Defferentiate between photochemical and thermal reaction.

(d) Give the advantages of flash photolysis.

(e) Give an account of auto catalysis.

(f) Explain the kinetics of reaction between NO_2 and F_2.

(g) What is acid-base catalysis ? State different types of acid-base catalysis.

(h) Discuss the metallic mirror method.

(i) Give the photolysis of acetone.

(j) Differentiate between enzyme catalysis and hetrogeneous catalysis.

2 Answer the following :

(a) Discuss :

(i) Characteristics of chain reactions.

(ii) Laws of photochemistry.

(b) Explain classical collission theory.

(c) Explain primary salt effect in detail.

3 Answer the following :

(a) Discuss thermal reaction between hydrogen and bromine.

(b) Give an account of secondary salt effect.

OR

3 (a) Describe theory of hetrogeneous catalysis.

(b) Give an account of stopped flow method.

4 Answer the following :

(a) Describe the factors affecting enzyme catalyzed reaction.

(b) Explain :

(i) Catalytic coefficient.

(ii) Reaction mechanism of acid catalysed hydrolysis of methyl acetate.

5 Answer following : (any **two**)

(a) Explain :

(i) Upper and lower explosion limit.

(ii) Decomposition of Ozone.

(b) Discuss :

(i) Photosensitization and quenching.

(ii) Bronsted - Bierrum reaction.

(c) Describe the classification of catalyst.

(d) Discuss the mechanism of Hypochorite - iodide reaction by both mechanism.

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