# MONAD UNIVERSITY HAPUR (UP)

**Programme:**B.Sc.

**Semester:** V

**Course: BSCMN-351,** REAL ANALYSIS

Assignment No: 2

Due date of submission: 23.10.2017

**Instructions:**

1. Write the responses to the assignment in your own handwriting.
2. Submit the responses to your HOD within the due date.
3. Write your Name, Programme and Enrolment No. clearly at the top of the page.

Q.1.

(a) As you are aware of R-integral, prove that if $f$ is continuous on $[a, b]$, then $f \in R[a, b]$.

(b) A function $f$ is defined on $[0,1]$ by $f(x) = \frac{1}{2^n}$ for $\frac{1}{2^{n+1}} < x \leq \frac{1}{2^n}, n = 0,1,2, \ldots$ and $f(0) = 0$. Show that $f \in R[0,1]$.

Q.2.

(a) If $(X, d)$ be a metric space then, prove that

$$d(x, y) \geq |d(x, z) - d(z, y)| \qquad \text{for all } x, y, z \in X$$

(b) Let **R** denote the set of real numbers. Prove that the function $d: \mathbf{R} \times \mathbf{R} \to \mathbf{R}$ defined by

$$d(x, y) = |x - y|$$

is a metric on **R**.

**Elements of quantum mechanics atomic and molecular spectra**

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Q1 (a) State the postulates of Bohr's theory and deduce on expression for the energy of the $n^{th}$ orbit of Hydrogen atom.

Q1 (b) Explain Raman effect by using quantum theory.

Q2 (a) as you are aware of stimulated emission of radiation. Establish relations among "Einstein's coefficients"?

Q2 (b) As we are aware of spin orbit coupling .Using the L-S scheme give the states corresponding to 4p-4d electron system.

# Department of Chemistry

## ASSIGNMENT-2

**Course**- B.Sc(PCM)/(ZBC)

**Sub**-Inorganic Chemistry **Year**- III$^{rd}$ year/V$^{th}$sem

**Last date of Submission-23/10/2017**

## Instruction

1)Write the responses to the assignment in your own handwriting.

2)Submit the responses to your HOD within the due date.

3)Write your name, program and Enrollment nu clearly at the top of the page.

Q1.

a)Explain thermodynamic and kinetic stability.

b)What are factors effecting stability of complex.

Q2.

a)Explain paramagnetism and diamagnetism of transition metal.

b)Explain trans effect with proper examples

# Department of Chemistry

# ASSIGNMENT-2

**Course**- B.Sc(PCM)/(ZBC)

**Sub**-Physical Chemistry **Year**- III$^{rd}$ year/V$^{th}$sem

**Last date of Submission-11/09/2017**

## Instruction

1)Write the responses to the assignment in your own handwriting.

2)Submit the responses to your HOD within the due date.

3)Write your name, program and Enrollment nu clearly at the top of the page.

Q1.

a)What is MOT? Explain with examples.

b) Explain hybridization with proper example.

Q2.

a)Explain emission and absorption spectra.

b)Explain the basic concept of spectroscopy?