



## MONAD UNIVERSITY HAPUR (UP)

**Course: B.Sc(PCM) –III Sem, Subject Name: Linear Algebra and Matrices**

Assignment No: 1

Due date of submission: 10.11.2016

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 me, and Enrolment No. clearly at the top of the page.

Q.1

a) Solve the following equations by matrix method:

$$\begin{aligned}2x + y + z &= 1 \\ X - 2y - 3z &= 1 \\ 3x + 2y + 4z &= 5\end{aligned}$$

b) Find the rank of the matrix.

$$A = \begin{bmatrix} 1 & 2 & 2 \\ 3 & 6 & 6 \\ 2 & 4 & 4 \end{bmatrix}$$

Q.2

a) Find the  $A^{-1}$ . If  $A = \begin{bmatrix} 2 & 3 & 4 \\ 5 & -2 & 6 \\ -3 & 7 & 0 \end{bmatrix}$ .

b) Find the characteristic equations and Eigen values of the matrix.

$$A = \begin{bmatrix} 2 & -2 & 3 \\ 10 & -4 & 5 \\ 5 & -4 & 6 \end{bmatrix}$$



## MONAD UNIVERSITY HAPUR (UP)

**Course: B.Sc(PCM) –III Sem Subject Name: Linear Algebra and Matrices**

Assignment No: 2

Due date of submission: 10.11.2016

### 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 me, and Enrolment No. clearly at the top of the page.

### Q.1

- a) Show that the system of three vectors  $(1, 3, 2)$ ,  $(1, -7, -8)$ ,  $(2, 1, -2)$  of  $V_3(\mathbb{R})$  is linearly dependent.
- b) Show that the mapping  $T: V_3(\mathbb{R}) \rightarrow V_2(\mathbb{R})$  defined as
$$T(a_1, a_2, a_3) = (3a_1 - 2a_2 + a_3, a_1 - 3a_2 - 2a_3)$$
Is a linear transformation from  $V_3(\mathbb{R})$  into  $V_2(\mathbb{R})$ .

### Q.2

- a) Define the following Matrices,
  1. Hermitian Matrix
  2. Skew Hermitian Matrix
  3. Orthogonal Matrix
  4. Square Matrix
- b) Show that the vector space of all ordered  $n$ - tuples over a field  $F$ .



## MONAD UNIVERSITY HAPUR (UP)

**Course: Electromagnetic theory/E.M.F.T.**

**Assignment: 1**

**Due date of submission: 10/11/2016**

**Instructions:**

1. Write the response to the assignment in your own handwritings.
2. Submit the response to your H.O.D. within the due date.
3. Write your name, program and enrollment no. clearly at the top of the page.

Q1(a). Apply Gauss theorem to find the electric field strength at a point near infinite uniform flat sheet of charge.

Q1(b). Apply Laplace equation to find the potential function outside a charge conducting sphere.

Q2(a). Explain electric dipole and electric dipole moment with suitable example.

Q2(b). Define magnetic vector potential. With the help of magnetic vector potential we can find magnetic flux density? If yes elaborate with suitable example (at least two.)

## **MONAD UNIVERSITY HAPUR**

**Course: phy 211 Electromagnetic theory/E.M.F.T.**

**Assignment: 2**

**Due date of submission: 10/11/2016**

**Instructions:**

1. Write the response to the assignment in your own handwritings.
2. Submit the response to your H.O.D. within the due date.
3. Write your name, program and enrollment no. clearly at the top of the page.

Q1 (a). Use Ampere's Law to determine Magnetic field at any point due to current flowing in a long cylindrical wire.

Q1 (b) Write Short note on (a) Biot Savart Law (b) Magnetic Torque and Magnetic Moment.

Q2 (a) Classify magnetic materials on the basis of their properties with Examples.

Q2 (b) Define and Classify polarizations or Explain polynting Theorem with mathematics.



## **ASSIGNMENT-1**

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

**Sub code-**

**Sub-Inorganic Chemistry**

**Year-3<sup>rd</sup> sem**

**Last date of Submission-06/11/2016**

### **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 Werner Theory of Cordination compounds. Determine and describe its structure with example of Platinum amines.

b) Explain Bronsted-Lowry and Lewis concept of acid and base.

#### **Q2.**

a) Explain in detail the working and figure of Electrochemical cell.

b) Define Metallurgy. Explain different methods of extraction of metals.



## **ASSIGNMENT-2**

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

**Sub code-**

**Sub-** Inorganic Chemistry

**Year-**2<sup>nd</sup> year/III<sup>rd</sup> sem

**Last date of Submission-**06/11/2016

### **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) Discuss the characteristics properties of first transition series.
- b) Give general characteristics and comparative treatment of Zr/Hf.

#### **Q2.**

- a) Explain chemistry of Lanthanide elements.
- b) Explain chemistry of Actinide elements.



## **ASSIGNMENT-1**

**Course-** B.Sc PCM/ZBC/HonSub **code-**

**Sub-physical Chemistry** **Year-** II<sup>st</sup> year/III<sup>st</sup> sem

**Last date of Submission-** 06/11/2016

### **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 mean by conservation of energy? Derive the expression for first law of thermodynamics. what is work done in isothermal reversible expansion of an ideal gas?

b) What is Joule Thomson effect? Explain in detail?

Q2

a) What is Entropy ? what is its physical significance .Derive the expression for entropy change?

b) What is Clasius Clayperon equation? Derive it?



## **ASSIGNMENT-2**

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

**Sub-** Physical Chemistry

**Last date of Submission-**06/11/2016

**Sub code-**

**Year-** 2<sup>nd</sup> year/3<sup>rd</sup> sem

### **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) . Describe the Debye Huckle Onsagar reaction for strong electrolyte.
- b) . What is Kohralsush law of independent migration of ions? Explain with example.

Q2.

- a) . What is phase rule? Explain the phase diagram for one component system like water.
- b) . What of entropy of mixing of two or more nonreacting gases ? Derive the expression.