MONAD UNIVERSITY HAPUR (UP)

Programme: **B.Sc (PCM)**

Semester: **IV**

Course: **MTH-221 Differential Equations and Integral Transforms**

Assignment No: **2**

Due date of submission: **22.04.2019**

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 Number clearly at the top of the page.

Q.1

(a) Using Laplace transform, solve the following initial value problem:

$$y'' + y = t\cos 2t, \quad y(0) = 0, \quad y'(0) = 0.$$

(b) Using the Convolution theorem, find the inverse Laplace transform of the following:

(i) $\frac{1}{(s-2)(s+2)^2}$ (ii) $\frac{1}{(s^2+1)^3}$

Q.2

(a) Define Fourier transform and inverse Fourier transform. Find the Fourier transform of

$$f(x) = \begin{cases} 1 - x^2, & |x| \le 1 \\ 0, & |x| > 1 \end{cases}$$

(b) Find a Fourier series to represent: $f(x) = x\sin x$, for $0 < x < 2\pi$.

MONAD UNIVERSITY HAPUR (UP)

Programme: **B.Sc. (PCM)**

Semester: **IV**

Course: **MTH-222 Complex Analysis**

Assignment No: **2**

Due date of submission: **22.04.2019**

Instructions

4. Write the responses to the assignment in your own handwriting.
5. Submit the responses to your HOD within the due date.
6. Write your Name, Programme and Enrolment Number clearly at the top of the page.

Q.1

(b) State and prove Cauchy's fundamental theorem.

(c) Obtain the Taylor's and Laurent's series which represent the function

$$f(z) = \frac{z^2-1}{(z+2)(z+3)} \text{ in the regions}$$

(i) $|z| < 2$ (ii) $2 < |z| < 3$ (iii) $|z| > 3$

Q.2

(c) State and prove Rouche's theorem.

(d) Evaluate the residues of $\frac{z^3}{(z-1)(z-2)(z-3)}$ at $z = 1, 2, 3$ and infinity and show that their sum is zero.

MONAD UNIVERSITY HAPUR (UP)

Programme: B.Sc.
Semester: IV
Course: PHY-221 PHYSICAL OPTICS AND LASER
Assignment No: 2
Due date of submission: 22 April 2019

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.

Q1.

a) What are Coherent Sources? Discuss the important conditions for interference of light.
b) Describe the Newton's ring method to determine the wavelength of sodium light.

Q 2

a) As you are of diffraction. Explain the Fraunhoffer diffraction at a circular aperture.
b) As you are aware of interference of light. Explain constructive and destructive interference on the basis of wave theory of light.

MONAD UNIVERSITY HAPUR (UP)

Programme: B.Sc.
Semester: IV
Course: PHY-222 RELATIVITY AND STASTICAL PHYSICS
Assignment No: 2
Due date of submission: 22 April 2019

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.

Q1.

(a) As you aware of the frame of reference .Explain Michelson Morley experiment and discuss the importance of its negative result.

b) As you are aware of partition function of any example .Calculate Gibb's free energy enthalpy using partition function.

Q 2

a) Find the density of matrix of an identical particles arranged in a canonical assemble.

b) Write note on :

(i) Thermodynamic function.

(ii) Statistical equilibrium.

ORGANIC CHEMISTRY, CHE-221

B.Sc. IV SEM

Assignment No: 02
Due Date of Submission: 22 April 2019

Instructions:

- Write the responses to the assignment in your own handwriting.
- Submit the responses to your HOD with in the due date.
- Write your Name, Programme & Enrolment No. Clearly at the top of the page.

Question: 01

A. Compare the acidic strength of phenol and alcohols.

B. What are electrophilic substitution reactions? Explain with examples.

Question: 02

A. Explain the Kolbe's electrolytic reaction.

B. Explain the reduction in carboxylic acids.

Assignment- II
Program:- B.Sc. (PCM) IV Sem.
Course Title:- Fundamental of value education in profession
Course Code:- FVEP-221

Instructions:

1. **Write the assignment in your own handwriting.**
2. **Submit assignment to your HOD within given time.**
3. **Write your name , program and enrolment number clearly at the top of the Page**

1.

a) Happiness and unhappiness are both side of a coin. Do you agree on that? Give example.

b) Self and body both are the unconditional situation of human being. Explain the needs of self and body.

2.

a) Write a note or try to draw a special focus on right understanding, physical facilities and relationship.

b) What are the various activities of self and body. Illustrate with example.