



## MONAD UNIVERSITY HAPUR (UP)

**Programme:** M.Sc.

**Semester:** I

**Course:** MMTH-111 Operations Research

Assignment No: 1

Due date of submission: 11.09.2017

### **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 the Operations Research, explain the scope of Operations Research.
- (b) Define linear programming problem with examples.

Q2.

- (a) As you are aware of the transportation problems, write down the names of the transportation methods.
- (b) What are the assignment problems, define with an example?



## MONAD UNIVERSITY HAPUR (UP)

**Programme:** M.Sc.

**Semester:** Ist

**Course:** MMTH-112 Discrete Mathematics

Assignment No: 1

Due date of submission: 11.09.2017

### **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 the mathematical logics, briefly explain the statements and their types.
- (b) What is tautology and contradiction?

Q2.

- (a) As you are aware of the Boolean Algebra, explain AND, OR, NOT Operations.
- (b) What is the principle of duality?



## MONAD UNIVERSITY HAPUR (UP)

Programme: **M.Sc**

Semester: **I**

Course: **MMTH-113- NUMERICAL ANALYSIS**

Assignment No: **1**

Due date of submission: **11.09.2017**

### 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

- a) If  $\Delta$  and  $\nabla$  are the first descending differences operator and the first ascending differences operator respectively of the function  $f(x)$ , then show that  $\Delta - \nabla \equiv \Delta \nabla$ .
- b) We know that in the mathematical field of numerical analysis, interpolation is a method of constructing new data points within the range of a discrete set of known data points. Discuss various methods for interpolation.

### Q.2

- a) Find the first term of the series whose second and subsequent terms are 8, 3, 0, -1, 0.
- b) In numerical linear algebra, the Gauss-Seidel method, known as the Liebmann method or the method of successive displacement, is an iterative method used to solve a linear system of equations. Using Gauss-Seidel method, solve the following system of linear equations:

$$x+y-z=20, \quad -x+3y=2, \quad x-2z = 3.$$



## MONAD UNIVERSITY HAPUR (UP)

**Programme:** M.Sc.

**Semester:** I

**Course:** MMTH-114 Differential Equations

Assignment No: 1

Due date of submission: 11.09.2017

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

Q.1

- (a) As you are aware of the differential equations, solve the Initial value problem  $2y'' + 8y' - 10y = 0$ ,  $y(0) = 2$  and  $y'(0) = 3$ .
- (b) Suppose that  $\phi_1$  and  $\phi_2$  are fundamental pair of solutions (and hence linearly independent) of  $y'' + q(x)y = 0$ . Then
- (i) The zeroes of nontrivial solutions of  $y'' + q(x)y = 0$  are isolated.
  - (ii) Let  $x_1$  and  $x_2$  be two consecutive zeros of  $\phi_1$ . Then,  $\phi_2$  has exactly one zero in  $(x_1, x_2)$ . Prove it.

Q2.

- (a) As you are aware of the differential equations, discuss whether two Frobenius series solutions exist or do not exist for the following equations:
- (i)  $2x^2 y'' + x(x+1)y' - (\cos x)y = 0$
  - (ii)  $x^4 y'' - (x^2 \sin x)y' + 2(1 - \cos x)y = 0$ .
- (b) Find the singular points of the differential equation  $x^3 y'' + x^2 y' + y = 0$ .

**Course:** Computer Fundamentals and C Programming (MCA-112)

**Submission Date:** 11 September 2016

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 enrollment number clearly at the top of the Pages

Q.1

a) As you know that computer is an electronic machine. So, draw the block diagram of computer? Also explain each component of it?

b) Define Primary & Secondary Memory?

Q.2

a) What do you mean by operating system? Explain in brief.

b) Define the terms

i) Software

ii) Hardware

iii) Algorithm

## **M.Sc. (mathematics), SEM-I**

**Course: PHEY-115 Fundamental of Renewable Energy Technologies**

**Assignment: 1**

**Due date of submission: 11/09/2017**

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.

Question 1

- (a) Describe the various renewable resources that have the potential to fulfill the needs of the society.
- (b) What is Manitoba Biomass Energy Support Program (MBESP)?

Question 2

- a) Describe the basic principles of solar energy.
- b) Write objectives of solar water heaters. Discuss advantages and disadvantages of solar water heaters.