MONAD UNIVERSITY HAPUR (UP)

Programme: **M.Sc.**

Semester: **II**

Course: **MMTH-123 Topology**

Assignment No: **2**

Due date of submission: **20.04.2018**

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) Define first countable space. Show that every discrete space is first countable.

(b) Define T_2- space or Hausdorff space with an example. Show that every metric space is T_2.

Q.2

(a) State and prove Urysohn metrization theorem.

(b) Define T_3-space and T_4- space. Prove that every T_4- space is also a T_3- space.

MONAD UNIVERSITY HAPUR (UP)

Programme: **M.Sc**

Semester: **II**

Course: **MMTH-124 REAL ANALYSIS**

Assignment No: **2**

Due date of submission: **20.04.2018**

Instructions

1. Write the responses to the assignment in your own handwriting.
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3. Write your Name, Programme and Enrolment Number clearly at the top of the page.

Q.1

a) Show that the simultaneous limit $\lim_{(x,y)\to 0} \frac{xy^3}{x^2+y^6}$ when does not exist.

b) If is such that is continuous at (a,b) and exists then f is differentiable at (a,b).

Q.2

a) Let f be a continuous function defined on [a,b]. Then there exist a sequence of polynomials which converges uniformly to f on [a,b].

b) State and prove Taylor's theorem for functions of two variables.

MONAD UNIVERSITY, HAPUR (UP)

Programme: M.Sc. (Maths)

Semester: II

Course: MMTH-125 METRIC SPACE

Assignment No: 2

Due date of submission: 20.04.18

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) Let(X, d) be a complete metric space and Y be a sub space of X .Then Y is complete iff Y is closed.

b) Two closed subsets of a metric space are separated iff they are disjoint.

Q2. a) Every compact subset A of a metric space X is closed.

b) Let (X,d) and (Y, ρ) be two metric space .A mapping f: X $\rightarrow$Y is open iff $f[A^0] \subset (f[A])^0$.

MONAD UNIVERSITY, HAPUR (UP)

Programme: M.Sc.

Semester: II

Course: MMTH-122 FLUID DYNAMICS

Assignment No: 2

Due date of submission: 20.04.2018

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 fluid dynamics, find the equation of continuity in Cartesian form.

(b) Define circulation, velocity potential and irrotational flow of a fluid.

Q2. (a) As you are aware of general theory of vortex motion, find the Bernoulli's equation.

(b) Briefly explain steady flow between two parallel plates (porous and non-porous).

MONAD UNIVERSITY, HAPUR (UP)

Programme: M.Sc.

Semester: II

Course: MMTH-121 MATHEMATICAL STATISTICS

Assignment No: 2

Due date of submission: 20.04.2018

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 mathematical statistics, write a short note on partial and multiple correlations.

(b) Briefly explain the correlation coefficients and rank correlation.

Q2. (a) As you are aware of test of significance, briefly explain the null and alternative hypothesis. What do you know about Type-I and Type-II errors?

(b) Briefly explain the small sample tests based on t, F and Chi-square statistics.