MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M.Sc. FORENSIC SCIENCE DEGREE EXAMINATION – SEPTEMBER 2023
SUBJECT: MFS 608 – APPLIED FORENSIC CHEMISTRY AND INSTRUMENTATION
Monday, September 11, 2023

Time: 14:00 – 16:30 Hrs.   Maximum Marks: 50

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Discuss the principle of ELISA. Explain its types.

(10 marks)

2. Discuss the instrumentation of HPLC. Add a note on reverse phase and normal phase chromatography.

(10 marks)

3. **Write short notes on:**

3A. Zeigler – Natta polymerization

3B. TGA and DTA

3C. Centrifugation

3D. Explain the preparation and properties of Dacron.

3E. Raman Spectroscopy

3F. Phase contrast and fluorescence microscopes.

(5 marks × 6 = 30 marks)

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SECOND SEMESTER M.Sc. FORENSIC SCIENCE DEGREE EXAMINATION – SEPTEMBER 2023
SUBJECT: MFS 604 – BASICS OF FORENSIC PSYCHOLOGY

Tuesday, September 12, 2023

Time: 14:00 – 16:30 Hrs.   Maximum Marks: 50

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Discuss the scientific and legal procedure of polygraph test.

(10 marks)

2. Explain *"Psycho-analytical Theory"* of personality.

(10 marks)

3. **Write short notes on:**
3A. Correlation
3B. Spinal cord
3C. Monocular cues of perception
3D. Stages of memory
3E. Elements of thinking
3F. Genetics and crime

(5 marks × 6 = 30 marks)

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SECOND SEMESTER M.Sc. FORENSIC SCIENCE DEGREE EXAMINATION – SEPTEMBER 2023

SUBJECT: MFS 612 – FORENSIC APPROACH IN CRIME SCENE INVESTIGATION

Saturday, September 09, 2023

Time: 14:00 – 16:30 Hrs.   Maximum Marks: 50

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Write a detailed note on the need for scientific investigation in the modern era. Support your answer with relevant case studies.

(10 marks)

2. What is crime scene reconstruction? What are the different stages of it? Add a note on reconstructing the trajectory of a firearm projectile.

(1+3+6 = 10 marks)

3. **Write short notes on:**

3A. Crime scene security

(5 marks)

3B. Collection of trace evidences.

(5 marks)

3C. Section 164 Cr. PC

(5 marks)

3D. What is the legal definition for theft? How do you investigate special forms of theft?

(1+4 = 5 marks)

3E. Retrieval of seized property from court

(5 marks)

3F. Methods of searching a crime scene. Add a note on legal implications of searching the scene of crime.

(3+2 = 5 marks)

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SECOND SEMESTER M.Sc. MEDICAL (ANATOMY, PHYSIOLOGY, BIOCHEMISTRY, PHARMACOLOGY, MICROBIOLOGY) / MSc. FORENSIC SCIENCE DEGREE EXAMINATION – SEPTEMBER 2023

SUBJECT: MCC 602 - COMMON CORE: INTRODUCTION TO RESEARCH
MFS 602 - COMMON CORE-2: RESEARCH METHODOLOGY

Wednesday, September 06, 2023

Time: 14:00 – 16:30 Hrs.   Maximum Marks: 50

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Explain in detail the components of a research article.

(10 marks)

2A. Write briefly about Skewness, Kurtosis and its measures.

2B. The mean height of 500 students is 165cm and the standard deviation is 5 cm. Assuming that the heights are normally distributed. Find how many students have a height between 155 cm and 175 cm.

(10 marks)

3. **Short Answer Questions:**

3A. Define Hypothesis, Type-I and Type-II error, Level of significance and Power of the test.

3B. Explain stratified sampling method with its application, advantages and disadvantages.

3C. In a study among diabetic patients, 2 different treatments were followed and the results are given below. Test statistically whether the association between the treatment methods and Blood Sugar control is significant and interpret the result.

Treatment regimen	Blood Sugar Level Controlled	Blood Sugar Not Controlled
Allopathic drug	10	10
Allopathic + Ayurvedic drug	15	10

($X^2 = 3.841$ at 5% level of significance)

3D. Sample of admission white blood (1000) for all patients entering a hospital on a day are given below. Compute the mean, median and coefficient of variation of white blood count.

7, 35, 5, 9, 8, 3, 10, 12 and 8

3E. Explain case-control study design, its advantages and disadvantages with an example.

3F. What is the role of informed consent in medical research?

(5 marks × 6 = 30 marks)

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✍ **Answer ALL the questions.**

1. Define cyber forensics. Discuss the types and classifications of cyber-crimes in detail with relevant examples.

(10 marks)

2. Write a detailed note on Cyber Incident Response cycle.

(10 marks)

3. **Write short notes on:**

3A. Essential amendments in Copyright Act due to IT Act 2000

3B. Important regulations in IT Act 2008

3C. Handling and preserving digital evidence.

3D. Cyber stalking directed towards child pornography

3E. Card skimming and its prevention.

3F. **Explain the following:**
   i)   Management fraud
   ii)   Forensic accounting
   iii) Financial statement frauds
   iv)   Role of forensic accountant in Divorce cases
   v)   Earnings manipulation shenanigans.

(5 marks × 6 = 30 marks)