

B.Sc.-M.Sc. INTEGRATED PROGRAMME (BIOTECHNOLOGY)
SEMESTER IV, ONLINE EXAMINATION, MAY 2021
PAPER CODE - BBT-SEC02A

PAPER TITLE: BASICS OF FORENSIC SCIENCE

Time : Three Hours

Maximum Marks : 75

Attempt all questions. All parts of a question must be attempted in continuation. Start answer of a fresh question on a new page. Cite examples and draw labeled diagrams wherever necessary

Question No. 1:

A) Choose the correct answers of the following :

[15 × 1 = 15]

- 1) People who claim skill in identifying personality traits by studying a writer's handwriting are called graphologists.
- 2) A metallurgical microscope is used to identify metal based evidence found at the crime scene.
- 3) Phase contrast microscope can be used to study bacterial cells or blood samples from the crime scene.
- 4) Gas chromatography technique is commonly utilized for the detection of accelerants in fire debris in forensic laboratories. eg., turpentine, gasoline.
- 5) Mobile phase used in HPLC is liquid which flows through a column packed with solid stationary phase under continuous pressure.
- 6) Modus Operandi is used in criminal profiling where it can help in finding clues to the offender's psychology.
- 7) Laceration is a wound in which tissues are torn due to heavy, hard and blunt force to the body.
- 8) Strain theory argues that crime occurs when there is a gap between the cultural goals of a society (e.g. material wealth, status) and the structural means to achieve these (e.g. education, employment).
- 9) Colin Fitchfork was the first criminal caught based on DNA fingerprinting evidence.
- 10) Chemical test like Reinsch Test is an initial indicator to detect the presence of one or more Heavy Metals.
- 11) Shaky lines, thick start and finishes for words, lot of pen lifts are not important characteristics to be identified in handwriting analysis.
- 12) Identifying suspects, inducing confession, exonerating the innocent and providing expert testimony in court are not the part of forensic scientist's job profile.
- 13) Ultraviolet and infrared photography have no use in the field of forensic science.
- 14) Arches and loops are only two types of minutiae present in fingerprints.
- 15) Id, ego and superego are not the parts of psychodynamic theory.

Question No. 2:

Attempt any THREE of the following:

[3 × 5 = 15]

- A. What is forensic science? Explain in detail the different branches of forensic science?**

- B. Define the concept of crime. Explain in detail 5 different types of crime theories with examples.
- C. Differentiate between types of injuries and their medico-legal aspects.
- D. What is Modus Operandi (MO)? Explain how MO helps in criminal investigation.
- E. Explain any five laboratory techniques in detail which can be applied in the field forensic science.

Question No. 3:

[2 x 7.5 = 15]

Attempt any TWO of the following:

- A. What are different kinds of firearms? Explain internal, external and terminal ballistics in detail and their importance in forensic science.
- B. Explain in detail the field of forensics that deals with examining of the questioned documents.
- C. What are the different types of explosives studied by forensic scientists? Explain chemical explosives in detail.
- D. Explain how ink analysis allows forensic researchers to examine questioned documents.

Question No. 4:

[1 x 15 = 15]

Attempt any ONE of the following:

- A. Define the role of toxicological findings in the field of forensic science. Explain any five techniques that a toxicologist can use in criminal investigation.
- B. What are the fundamental principles of fingerprints and their classification? Explain in detail how fingerprints are used in personal identification.

Question No. 5:

[1 x 15 = 15]

Attempt any ONE of the following:

- A. Give a detailed account of DNA fingerprinting and its application in the field of forensic science.
- B. Explain how forensic science plays a crucial role in preventing and investigating 21st century digital crimes?

It should be noted that 60 minutes extra time will be provided to scan your answer sheets, build a PDF and upload it to biotechnologyexam2020@gmail.com

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