

**C-6304**

**Sub. Code**

**99023**

**B.Sc. DEGREE EXAMINATION, APRIL 2022**

**Second Semester**

**Forensic Science**

**CRIME SCENE MANAGEMENT**

**(2020 onwards)**

Duration: 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define evidence.
2. List out any four duties of first responding officer.
3. Explain the logic behind long range photography in crime scenes.
4. List out the advantages of the triangulation method of sketching.
5. How are bite marks collected?
6. What is trace evidence?
7. What do you mean by hypothesis?
8. List out the stages of investigation.
9. What do you mean by lead questions?
10. What all information is available from FIR?

**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the steps of crime scene investigation.

Or

- (b) What is the principle of exchange? Explain its application in crime scene examination.

12. (a) You are assigned to conduct a search inside a house. Which pattern you will choose. Explain the logic behind it.

Or

- (b) How are lip prints collected?

13. (a) Explain the procedure of collection and packing of explosive materials.

Or

- (b) Which are the major crime scenes from which hair is likely to be available as evidence? How to collect hair evidence?

14. (a) How handwriting samples are collected from suspects?

Or

- (b) What is crime scene reconstruction? How to reconstruct a crime scene with the help of computers?

15. (a) Write a sample forwarding letter to forward evidences to state FSL of Tamil Nadu.

Or

- (b) Zip bags shall not be used for packing of biological evidence and paper bags are preferred. Explain the reason.

**Part C**

(3 × 10 = 30)

Answer **all** questions.

16. (a) Explain the following types of evidences:
- (i) Corroborate evidence
  - (ii) Conclusive evidence
  - (iii) Testimonial evidences.

Or

- (b) Explain in detail the actions of the first responding officer.

17. (a) Write a detailed note on strip, spiral and zone method of searching. Explain their applications.

Or

- (b) Write in detail the procedure of crime scene photography.

18. (a) Explain the collection procedure of
- (i) Tool Marks
  - (ii) Fibre
  - (iii) Paint.

Or

- (b) What are the documents to be submitted to an FSL along with evidence? Explain in detail.

**C-6305**

**Sub. Code**

**99024**

**B.Sc. DEGREE EXAMINATION, APRIL 2022**

**Second Semester**

**Forensic Science**

**IMPRESSION ANALYSIS**

**(2020 onwards)**

Duration: 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What are tool marks?
2. How to develop the negative caste of a tool mark?
3. How to collect lip prints?
4. Explain the scope of footwear impression.
5. What is ear print?
6. How fingerprints are transferred?
7. What are fingerprints?
8. What is the biological function of fingerprints?
9. Explain the features of the brushes used for collecting fingerprints.
10. What are plastic prints?

**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) What are the types of tool marks? Explain their formation.

Or

- (b) Explain the working of the comparison microscope.

12. (a) How to recover footwear impressions from soil?

Or

- (b) How footwears attain individuality?

13. (a) Explain about the uniqueness of palm prints.

Or

- (b) How to collect lip print from a suspect?

14. (a) What are the chemical methods of development of fingerprints?

Or

- (b) How to develop fingerprint from a dead body?

15. (a) Explain the various visualisation techniques for fingerprints.

Or

- (b) Make a note on AFIS.

**Part C**

(3 × 10 = 30)

Answer **all** questions.

16. (a) How does a tool attain its individuality? Do you think prolonged use changes the individuality of the tool? Substantiate your answer.

Or

- (b) What are the class characteristics of a tool? Explain the way in which the comparison microscope is used for the comparison of individual characteristics.
17. (a) What are the different methods of fingerprint development? Explain in detail.

Or

- (b) Write a detailed note on the ninhydrin method and iodine fume methods of fingerprint development.
18. (a) List out with rough sketches the minutiae of fingerprints.

Or

- (b) What is Henry's system of fingerprint classification?

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**C-6306**

**Sub. Code**

**99025**

**B.Sc. DEGREE EXAMINATION, APRIL 2022**

**Second Semester**

**Forensic Science**

**INSTRUMENTATION PHYSICAL**

**(2020 onwards)**

Duration: 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is spectroscopy?
2. What is density?
3. What do you mean by refractive index?
4. Explain the physics behind fluorescence.
5. State Beer- Lambert's law.
6. List the applications of UV spectroscopy.
7. What is the major application of FTIR?
8. What is the principle of XRF?
9. How does the NAA work?
10. List out the forensic application of polarography.

**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) Explain the principle of phosphorescence.

Or

- (b) What is refractive index? How to find out the RI of a broken glass piece?

12. (a) State and derive Beer - Lambert's law.

Or

- (b) Explain the instrumentation of Raman spectroscopy.

13. (a) Explain the principle of AAS.

Or

- (b) Explain the instrumentation of NAA.

14. (a) What is the principle of XRD?

Or

- (b) Explain the working of NMR spectroscopy.

15. (a) Explain the principle of mass spectroscopy.

Or

- (b) What is the Fast Atom Bombardment (FAB) method of ionisation?

**Part C**

(3 × 10 = 30)

Answer **all** questions.

16. (a) Explain any four ionisation techniques for mass spectroscopy.

Or

- (b) Explain about any three detectors of mass spectroscopy.

17. (a) Explain the principle and instrumentation of pulse polarography.

Or

- (b) Explain the principle, working and application of AAS.

18. (a) Compare the working of quadrupole mass analyser and time of flight analyser.

Or

- (b) Explain the fingerprint region of IR spectroscopy? What do you mean by FTIR? Explain.

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**C-6310**

**Sub. Code**

**99042**

**B.Sc. DEGREE EXAMINATION, APRIL 2022**

**Fourth Semester**

**Forensic Science**

**INSTRUMENTATION BIOCHEMICAL**

**(2020 onwards)**

Duration: 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** the questions.

1. What are buffers?
2. Explain the principle of centrifugation.
3. Draw the ray diagram of compound microscope.
4. Explain applications of stereo microscope in forensic science.
5. Explain the sample preparation of fluorescent microscope.
6. Why the images of SEM is always seen as black and white?
7. Brief about the stationary phases used in TLC.
8. Brief about the columns used in HPLC
9. What is SDS electrophoresis?
10. Brief about precipitin reaction.

**Part B**

(5 × 5 = 25)

Answer **all** the questions.

11. (a) What is pH? How do buffer solutions work?

Or

- (b) Explain the working of density gradient centrifugation.

12. (a) Write a note on the working of stereo microscope.

Or

- (b) Explain the working and applications of comparison microscope.

13. (a) What is a transmission electron microscope? Explain its applications.

Or

- (b) Explain the working of Atomic Force Microscope.

14. (a) Explain the principle and working of HPLC.

Or

- (b) Compare and contrast TLC and HPTLC.

15. (a) Explain the working of PAGE electrophoresis.

Or

- (b) Write a note on the working of crossover electrophoresis.

**Part C**

(3 × 10 = 30)

Answer **all** the questions.

16. (a) Explain the procedure of making standard solutions and serial dilutions. Also explain the applications of serial dilutions.

Or

- (b) Explain in detail the working of a comparison microscope with the help of a rough diagram.
17. (a) Explain the principle, working, and interpretation of chromatograms in the case of GC.

Or

- (b) Explain the working of LC-MS in detail.
18. (a) Explain Abbe's equation. Also explain the working of compound microscopes.

Or

- (b) What is electrophoresis? Explain its principle. How it is used for DNA analysis?

**C-6311**

**Sub. Code**

**99043**

**B.Sc. DEGREE EXAMINATION, APRIL 2022**

**Fourth Semester**

**Forensic Science**

**FORENSIC SEROLOGY AND DNA TYPING**

**(2020 onwards)**

Duration: 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is medullary index?
2. List the different types of fibres.
3. Brief about the composition of human blood.
4. What is the Bombay blood group?
5. Write the procedure of the benzidine test for blood.
6. What are the constituents of semen?
7. What are alleles?
8. What is DNA profiling?
9. What is PCR?
10. Explain the importance of Y STR.

**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) Compare and contrast human and animal hair.

Or

- (b) Compare and contrast head hair, face hair and pubic hair in humans.

12. (a) Explain the principle and procedure of blood grouping.

Or

- (b) Write the differences between agglutination, and precipitation.

13. (a) Explain the absorption elution method of blood analysis.

Or

- (b) Explain the chemical tests for urine.

14. (a) Explain the functions and forensic significance of mitochondrial DNA.

Or

- (b) What is the paternity index? How to calculate it?

15. (a) Explain the RFLP system of DNA analysis.

Or

- (b) Explain STR method of DNA analysis.

**Part C**

(3 × 10 = 30)

Answer **all** questions.

16. (a) Explain the visual, microscopic and spectroscopic analysis of fibres.

Or

- (b) What are immunochemical reactions? Explain the working of electrophoresis of blood.

17. (a) Explain any two presumptive tests and one confirmatory test for blood.

Or

- (b) Explain the microscopic and acid phosphatase tests of semen. Explain the forensic significance of semen.

18. (a) Explain in detail the procedure of DNA profiling.

Or

- (b) With suitable diagrams, explain the structure of DNA.

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**C-6312**

**Sub. Code**

**99044**

**B.Sc. DEGREE EXAMINATION, APRIL 2022**

**Fourth Semester**

**Forensic Science**

**FORENSIC TOXICOLOGY**

**(2020 onwards)**

Duration: 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define poison.
2. List out any four modes of drug administration.
3. What is charas?
4. Expand MDMA. Name the category of drugs in which MDMA belongs.
5. What is water extraction?
6. Explain the function of separating funnels.
7. What is pharmacokinetics?
8. What is LD50 and ED50?
9. What is Antidote?
10. Explain the basic procedure of stomach washing.

**Part B**

(5 × 5 = 25)

Answer **all** questions.

11. (a) With examples, explain the nature and functioning of volatile organic poisons.

Or

- (b) What is chronic poisoning? What are the common poisons used for chronic poisoning? Explain their general features.

12. (a) What are the features of accidental poisons? Give examples.

Or

- (b) What is opium? Which are the major derivatives of opium?

13. (a) Explain the general procedure of dry ash extraction of poisons. Name a few poisons that could be extracted via dry ash method.

Or

- (b) Write a note on the principle and procedure of solvent extraction of poisons.

14. (a) Explain different types of absorption. Also explain the different sites of absorption

Or

- (b) Explain the various parenteral routes of drug administration.

15. (a) What are the major symptoms of methanol poisoning. Explain the first aid to be provided in the case of alcohol poisoning.

Or

- (b) How to collect viscera samples to be collected and packed in the case of HCl poisoning?

**Part C** (3 × 10 = 30)

Answer **all** questions.

16. (a) List out with one example each of all 10 types of poisons based on their chemical nature.

Or

- (b) Explain in detail the various enteral and parenteral routes of administration of drugs.

17. (a) What is opium? Explain the forensic tests for opium derivatives.

Or

- (b) What are depressants? Explain the physical and psychological effects of barbiturates.

18. (a) What are antidotes? Explain the various classes of antidotes.

Or

- (b) Explain the various methods of poison extraction from viscera.

**C-5664**

**Sub. Code**

**16/17/23/25/  
26/27/29**

**Common for All U.G. B.Sc./B.B.A. DEGREE  
EXAMINATION, APRIL 2022**

**First/Second Semester**

**ENVIRONMENTAL STUDIES**

**(2019/2020 onwards)**

Duration : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** the questions.

1. ZSI.
2. WII.
3. What is renewable energy?
4. Food web.
5. Pyramid of numbers in aquatic ecosystem.
6. Red data book.
7. List out any five Endemic species of India.
8. List out marine pollutants.
9. *Ex Situ* Conservation.
10. Enlist Option Values of Biodiversity.

**Part B**

(5 × 5 = 25)

Answer **all** the questions.

11. (a) Write notes on definition, scope and importance of environmental studies.

Or

- (b) Write notes on soil erosion and desertification.

12. (a) Write notes on energy flow in the ecosystem.

Or

- (b) Write notes on threads to biodiversity.

13. (a) Write notes on Biodiversity at Global, National and Local levels.

Or

- (b) Write notes on various strategies of conservation of Biodiversity.

14. (a) Write notes on ecological pyramids.

Or

- (b) Write notes on air pollution.

15. (a) Write notes on noise pollution.

Or

- (b) Write notes on effects and control measures of nuclear hazards.

**Part C**

(3 × 10 = 30)

Answer **all** questions.

16. (a) Write an essay on the multidisciplinary nature of Environmental Studies.

Or

- (b) Write an essay on the following resources with special emphasis to how they are overexploited/utilized which in turn damage the environment, (i) Forest Resources and (ii) Food Resources.

17. (a) Write an essay on “India is a mega-diversity nation”.

Or

- (b) Write an essay on Biodiversity and their values.

18. (a) Write an essay on causes, effects and control measures of (i) Marine Pollution and (ii) Water Pollution.

Or

- (b) Write an essay on concept, structure and function of ecosystem.