

Code No. : 7825

Sub. Code : WMBE 11

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2023.

First Semester

Microbiology

Elective I — FORENSIC SCIENCE

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (15 × 1 = 15 marks)

Answer ALL questions.

Choose the correct answer :

1. What is the primary goal of forensic science?
 - (a) To exonerate innocent people
 - (b) To identify suspects and bring them to justice
 - (c) To punish criminals
 - (d) None of the above

5. Choose the services of Forensic Science Department
 - (a) The Forensic Sciences Department deals with a wide spectrum of forensic work and is equipped with several modern instruments for rapid and precise analysis. The Department receives exhibits for examination connected with crime or civil disputes or regulatory aspects or non-litigious matters from Presiding Officers of criminal courts, the High Courts, Police Officers, Medical Officers, Prohibition and Excise Department and Suspected poison cases from Government Medical and Veterinary Institutions.
 - (b) Food samples served to VVIPs during their visits are also examined in this Department to rule out Poisonous substance.
 - (c) The scientists of this Department also render assistance at the scene of crime where evidence has to be collected and its relationship to the criminal established.
 - (d) All the above

6. Which of the following is NOT associated with Forensic Science?
 - (a) Toxicology
 - (b) Criminology
 - (c) Forensic Medicine
 - (d) Electronics and Communication

2. The use of fire arms and ammunition in criminal investigation is known as _____.
 - (a) Forensic Entomology
 - (b) Forensic Pathology
 - (c) Forensic Toxicology
 - (d) Forensic Ballistics

3. What is the difference between circumstantial and direct evidence?
 - (a) Circumstantial evidence require interpretation, where as direct evidence speak for itself
 - (b) Circumstantial evidence is less reliable than direct
 - (c) Circumstantial evidence is always physical evidence, whereas direct evidence is always eyewitness testimony
 - (d) Circumstantial and direct evidence have no difference

4. Forensic Science Labs need the assistance from _____.
 - (a) Physics and Chemistry Division
 - (b) Ballistic Division
 - (c) Biology Division
 - (d) All the above

7. Phadebas Test is connected with
 - (a) Semen
 - (b) Saliva
 - (c) Blood
 - (d) Urine

8. Alkaline Phosphatase test is related with
 - (a) Semen
 - (b) Saliva
 - (c) Blood
 - (d) Urine

9. Regarding PSA — Choose the correct statement(s)
 - (a) PSA(p30) is known as a prostate-specific antigen that is produced by the prostatic gland in males
 - (b) The p30/PSA test is an immunochromatographic test that detects the presence of the antigen p30 in semen samples.
 - (c) This test functions similar to a pregnancy test, where if the antigen p30 is present a band will appear at the test site and a control band will appear to confirm if the test is working properly. If the confirmatory test is positive, then semen is present in the sample
 - (d) All the above

10. Quantity of DNA generally obtained while isolating DNA from blood sample is _____.
- (a) 1-2 µg (b) 3-12 µg
(c) 15-22 µg (d) Above 50 µg
11. Select DNA isolation method from the following
- (a) Organic extraction
(b) Chelex extraction
(c) Differential extraction
(d) All the above
12. Choose the genealogical DNA tests from the following
- (a) Autosomal (atDNA)
(b) Mitochondrial (mtDNA)
(c) Y-Chromosome (Y-DNA)
(d) All the above
13. Regarding Organic Poison
- (a) It involves animal and vegetable borne
(b) Croton oil and Castor oil are examples
(c) Snake Venom and Spider Venoms are examples
(d) All

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14. Ammonium Sulphate method is used for the extraction of following poison from Viscera
- (a) Metallic poison
(b) Volatile poison
(c) Insecticide
(d) Non Volatile Organic Phosphorous
15. Poison connected with Greenish coloured Urine is
- (a) Nitric acid (b) Carbolic acid
(c) Sulphuric acid (d) Hydrochloric acid

PART B — (5 × 4 = 20 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Portray the branches of forensic science.
- Or
- (b) Highlight the duties of forensic scientists.
17. (a) Write about the organisational structure of state level forensic science labs in Tamil Nadu.
- Or
- (b) Sketch the functions of forensic science laboratories.

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18. (a) Mention the importance of blood sample in forensic labs.

Or

- (b) Assess the role of semen sample in solving problems.

19. (a) What do you know about STR?

Or

- (b) Comment on RFLP.

20. (a) Make a note on the important concepts of forensic toxicology.

Or

- (b) Explain the types of poison.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

21. (a) Indicate the history and development of forensic science in Tamil Nadu.

Or

- (b) Discuss in detail about tools and techniques used in forensic science.

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22. (a) How do you understand the importance of mobile forensic labs?

Or

- (b) Write in detail about forensic microbiology.

23. (a) Measure the importance of forensic serology.

Or

- (b) Appraise the diverse types of samples used by forensic scientists.

24. (a) PCR technique is a boon for forensic scientists — Support.

Or

- (b) Describe the role of DNA in fixing paternity disputes.

25. (a) Write an essay on forensic toxicology.

Or

- (b) Discuss in detail about the diverse types of poison with their mode of action.

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