

FORENSIC MEDICINE

PAPER – I

FRM/D/16/09/I

Time : 3 hours

Max. Marks : 100

Important instructions:

- Attempt all questions in order.
- Each question carries 10 marks.
- Read the question carefully and answer to the point neatly and legibly.
- Do not leave any blank pages between two answers.
- Indicate the question number correctly for the answer in the margin space.
- Answer all the parts of a single question together.
- Start the answer to a question on a fresh page or leave adequate space between two answers.
- Draw table/diagrams/flowcharts wherever appropriate.

Write short notes on:

1. a) Diagrammatically represent basic histology of skin. 2+(2+2+2+2)
b) Injury interpretation for microscopy of skin in:
 - i) Mechanical injury
 - ii) Thermal injury
 - iii) Ballistic injury
 - iv) Chemical Injury

2. a) Different respiratory centres with their exact locations in brain stem. 5+5
b) Explain the mechanism of respiration in relation to functions of these centers.

3. a) Give the biochemistry of heme synthesis along with a diagram of all the key steps involved. 5+(3+2)
b) What are the toxins/poisons/other pathologies which block this synthesis? Mention exact step of block in each case.

4. a) Give structural formulas of diquat and paraquat. 2+4+4
b) Explain their mechanism of toxicity showing formation of free radicals in an equation.
c) How does the formation of free radicals produce toxicity?

5. Ramdhan, a 48 year old male attended a marriage party. 24 hours later he had bout of vomiting and diarrhea. 4+6
 - a) Explain how will you isolate and characterize the agents responsible.
 - b) Explain how will you do culture sensitivity tests with name of culture media and drugs.

6. What is the scope of Forensic microscopy? Give the principle behind and equipment used in: 1+(3+3+3)
 - i) Comparison microscope
 - ii) Electron microscope
 - iii) Polarizing microscope

P.T.O.

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7. a) Mention various Alternate Light Sources (ALS) used in Forensic Science and Forensic Pathology. 2+(4+4)
b) Uses of UV and IR in Forensic Medicine.
8. a) Difference between longitudinal and cross sectional studies giving examples. 3+3+(2+2)
b) How will you calculate a sample size while doing a research on nephrotoxicity due to snake bite?
c) What are bias? Mention the methods of minimizing bias.
9. Principles and procedures behind: 4+3+3
i) Memory and encoding related multifaceted electroencephalographic response
ii) Functional MRI
iii) Word Association Test
10. a) Enumerate various types of fibres and draw structure of each. 5+5
b) Role of fibre evidence in detection of crime.
