



**RAI-003-1014024** Seat No. \_\_\_\_\_

**B. Sc. (Forensic Science) (Sem. IV) (CBCS) Examination**

**March / April – 2019**

**FS - 401 : Basic Concepts and Principles of  
Physical, Chemical and Biological Analysis  
Technique - II**

**Faculty Code : 003**

**Subject Code : 1014024**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

**Instruction**

1. This question paper contains five questions. All are compulsory.
2. Draw neat and labeled diagrams wherever necessary.
3. Figure to the right indicate marks

- 1 (A) Objective type questions 4
1. Atomic absorbance spectroscopy follows 'Beer's law. True or False?
  2. In thermal gravimetric to obtain the temperature of  $1100^{\circ}\text{C}$ , the material of furnace is \_\_\_\_\_.
  3. \_\_\_\_\_ waves are used in NMR spectroscopy
  4. Give the value of magic angle in NMR?
- (B) Answer in brief (Any 1 out of 2) 2
- 1 Give the principle of atomic absorption spectroscopy.
  - 2 Give the full name of TG and DTG
- (C) Answer in detail (Any 1 out of 2) 3
- 1 Write a short note with diagram on atomization process-.
  - 2 Discuss the component of the NMR instrument with figure.
- (D) Write a note on (Any 1 out of 2) 5
- 1 Describe absorption spectrometer.
  - 2 What is chemical shift and splitting of signal in NMR graph?
- 2 (A) Objective type questions 4
1. State the types of immunity.
  2. Give the name of cells act as a defense soldiers against foreign particles.
  3. Define antigenic determinant.
  4. State the methods name for immunochemical.

(B) Answer in brief (Any 1 out of 2)	2
1. Define antigen and antibody	
2. Types of antigen and antibody reaction.	
(C) Answer in detail (Any 1 out of 2)	3
1. Explain the characteristic features and role of antigen antibody reaction.	
2. Explain agglutination and immune-precipitation.	
(D) Write a note on (Any 1 out of 2)	5
1. Discuss RIA	
2. Explain ELISA	
3 (A) Objective type questions	4
1. Density of kerosene at 15° C is _____	
2. Give the name of solvent system used for the thin layer chromatography of petrol?	
3. The pink color of phenolphthalein in alkali solution gives the value of $\lambda_{\max}$ at .....	
4. Full form of BIS	
(B) Answer in brief (Any 1 out of 2)	2
1. Define fire and arson	
2. Give the properties and chemical structure of phenolphthalein?	
(C) Answer in detail (Any 1 out of 2)	3
1. Describe Chemistry of fire.	
2. TLC of phenolphthalein	
(D) Write a note on (Any 1 out of 2)	5
1. Techniques used for the analysis of coloring agent in kerosene or petrol?	
2. What is fire and arson? Classify the fire on the basis of cause of fire and as well as source of ignition.	
4 (A) Objective type questions	4
1. What is Obliteration?	
2. The book entitled "Questioned document " is written by whom?	
3. Give the Type of passports on the basis of size.	
4. Define Counterfeiting.	
(B) Answer in brief (Any 1 out of 2)	2
1. What is "Document" according to IEA?	
2. How will you detect mechanical and chemical erasures?	
(C) Answer in detail (Any 1 out of 2)	3
1. Define document, question document and nature of problems related to question document.	
2. Forensic examination of coins.	
(D) Write a note on (Any 1 out of 2)	5
1. Write a note on Addition, alterations and obliterations.	
2. Describe security features of Indian passport	

- 5 (A) Objective type questions 4
1. Define Digital Forensics
  2. Where you can get the digital evidence? Enumerate any 2 sources of digital evidence.
  3. What is the full form of BHIM?
  4. Name any 2 E-Wallets.
- (B) Answer in brief (Any 1 out of 2) 2
1. What is Cyber Crime? Give names of 4-5 different Cyber-Crimes occurring now-a- days.
  2. How will you fulfill your role as concerned citizens for preventing risk in digital payment transactions?
- (C) Answer in detail (Any 1 out of 2) 3
1. What is the application of Digital Forensics?
  2. According to you, what can be the motives of doing cyber-crimes?
- (D) Write a note on (Any 1 out of 2) 5
1. Enlist types and subtypes of cyber-crimes.
  2. What is digital evidence? Describe the sources of digital evidence and what types of digital evidences are used now-a-days.
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