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Mid-Term Examinations – November 2021

Programme : **B.Tech. Computer Science and Engineering with Semester : Fall 2021-22**
(Specialization in Cyber security and Digital Forensics)
Course : **Forensic Chemistry and Applications** Code : **CHY1007**
Faculty : **Dr. Saurabh Bhargava** Slot/ Class No. : **B11+B12+B13/0685**
Time : **1 ½ hours** Max. Marks : **50**

Answer all the Questions

Q.No.	Sub. Sec.	Question Description	Marks
1	(a)	Compute and express each answer with the proper number of significant figures, rounding as necessary. I. $0.000440 \times 17.22 = ?$ II. $203,000 \div 0.044 = ?$ III. $67 \times 85.0 \times 0.0028 = ?$ IV. $999,999 \div 3,310 = ?$	5
	(b)	With appropriate example, differentiate between preliminary and confirmatory analysis; and destructive and non-destructive analysis.	5
2		Following two items has been sent to forensic lab for examination- <ul style="list-style-type: none">Item 1: A paper packet containing a white powder.Item 2: A plastic bag containing green leafy plant material. Draw the flow charts depicting the scheme of forensic analysis specific for both items.	10
3		Justify the significance of trace elemental analysis in forensics. Enumerate various elemental analytical techniques used in Forensic Science examinations of trace evidences. Explain the working principle of X-ray Fluorescence spectroscopy with a labelled diagram.	10
4		Draw a block diagram of instrumentation of IR spectroscopy, and explain what would be common differences in IR spectra of organic compounds containing alcohols, aldehydes, ketones and amines.	10
5		Differentiate between latent and patent fingerprints. Apply the knowledge of ninhydrin reagent's reaction with amino acids for development of latent fingerprints'. Enumerate the benefits/limitations of DFO method over ninhydrin method.	10

