JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

B.Tech-I Semester (ECE)

COURSE CODE (CREDITS):19B1WEC735 (3) MAX. MARKS: 25

COURSE NAME: Forensic Image Processing MAX. TIME: 1 Hour 30 Min

COURSE INSTRUCTORS: Lt. Pragya Gupta

Note: *(a) All questions are compulsory.*
(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1	a) Explain how cryptography ensures the integrity and confidentiality of forensic images during storage and transmission. ***(3 Marks)*** b) Differentiate between hashing and encryption with suitable examples from forensic applications. ***(3 Marks)***	CO4	6
Q2	a) Describe how digital watermarking can be used to authenticate a forensic image and detect tampering. ***(2 Marks)*** b)What are the major steps involved in embedding and extracting a digital watermark?***(2 Marks)*** c)Differentiate between visible and invisible watermarking with suitable examples.***(2 Marks)***	CO4	6
Q3	a) Define the dynamic range of an Image and explain its effect on image visibility and contrast. Give a simple example. ***(2 Marks)*** b) Differentiate between spatial resolution and intensity resolution. Explain how each affects image quality. ***(2 Marks)*** c) Why are RAW and TIFF file formats preferred in forensic imaging compared to JPEG? ***(2 Marks)*** d) Differentiate between JPEG and MPEG compression techniques based on the type of redundancy exploited and their applications. ***(2 Marks)***	CO2	8
Q4	During forensic document analysis, scanned signatures often appear faint, making verification difficult. (a) Which enhancement technique can be used to make faint ink strokes more visible? ***(2 Marks)*** (b) Explain why this is important for forensic handwriting verification.***(3Marks)***	CO1	5