

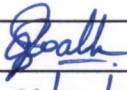
 THE NORTHCAP UNIVERSITY	Question Paper for Minor Test	Review Date: 19/02/2025
	Centre for Media & Entertainment	Semester: 2 (EVEN) Session: Jan-May 2025
	Programme: BSc-Sound Engineering Course: Digital Audio And Networking Technology Course Code: SEL102	Maximum Marks: 50 Duration: 90 mins
		Sheet No. 1
Note: Marks are indicated against the questions.		

PART A (15 Marks)*Answer any 5 from the below*

CO3	Q1. What are the main differences between analog and digital sound systems in terms of signal processing and storage?	(3 marks)
CO4	Q2. Explain the process of analog-to-digital conversion (ADC). What are some common challenges or limitations faced during this conversion?	(3 marks)
CO2	Q3. In what ways has the transition from analog to digital technology impacted the way sound is produced, recorded, and mixed in modern studios?	(3 marks)
CO3	Q4. Explain the working of the Tape Machine.	(3 marks)
CO1	Q5. What led to the "death" of the analog era? and why?	(3 marks)
CO4	Q6. How does the concept of "sampling rate" in digital audio compare to the continuous nature of sound in an analog system? Explain its impact on sound quality.	(3 marks)

PART B (25 Marks)*Answer any 5 from the below*

CO4	Q1. What is the Nyquist Theorem, and why is it critical in digital audio processing? Explain how the theorem helps prevent aliasing and how it applies to real-world digital audio systems.	(5 marks)
CO3	Q2. What is the difference between bit depth and sample rate in digital audio? Explain how each factor affects the quality of the recorded sound, and provide examples of typical values used in professional sound recording.	(5 marks)
CO1	Q3. Discuss the concept of signal-to-noise ratio (SNR) in both analog and digital audio systems. How does SNR impact the clarity and fidelity of the audio signal, and what techniques can be used to improve SNR in a recording system?	(5 marks)

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CO2	Q4. What is aliasing in digital audio, and how does it occur? Discuss methods used to prevent aliasing when converting analog signals to digital, including the role of anti-aliasing filters.	(5 marks)
CO3	Q5. Explain the concept of "quantization" in digital audio. How does quantization error affect sound quality, and what techniques can be used to minimize this error in a recording system?	(5 marks)
CO4	Q6. What are the main differences between a digital audio workstation (DAW) and traditional analog mixing equipment? Discuss the advantages and limitations of using a DAW for sound recording and mixing.	(5 marks)

PART C (10 Marks)*Answer any 1 from the below*

CO1	Q1. Discuss the impact of bit depth and sample rate on the dynamic range and overall sound quality of a digital audio recording. How do different bit depths (e.g., 16-bit vs 24-bit) and sample rates (e.g., 44.1 kHz vs 96 kHz) affect the final output in both music and film production?	(10 marks)
CO3	Q2. Describe the process of digital signal processing (DSP) in sound engineering. Discuss the key techniques used in DSP, such as equalization, compression, and reverb, and explain how they are applied to shape the final sound in both live sound and studio environments.	(10 marks)

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