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MAR_APR 2026 SUMMER EXAMINATION

11731 Bachelor of Technology (NEP-2.0)

Sub. Name: Linear Integrated Circuits

Sub. Code: 119689/116016

Day and Date: Thursday ,21-05-2026 **Total Marks: 60**

Time: 10:30 AM To 01:00 PM

Instructions:
1. **All questions are compulsory**
2. **Assume suitable data wherever necessary and mention it boldly**
3. **Draw neat labelled diagrams wherever necessary**
4. **Figures to the right indicate full marks**

Q1) Solve following MCQ. **[12]**

i. CMRR of an Op-Amp stands for:
- A. Common Mode Rejection Ratio
- B. Current Mode Resistance Ratio
- C. Common Mode Response Range
- D. Current Matching Response Ratio

ii. Slew rate of an Op-Amp is defined as:
- A. Maximum power dissipation
- B. Maximum rate of change of output voltage
- C. Input offset voltage
- D. Gain-bandwidth product

iii. A Schmitt Trigger is mainly used for:
- A. Amplification
- B. Wave shaping
- C. Rectification
- D. Oscillation

iv. An all-pass filter mainly changes:
- A. Amplitude
- B. Frequency
- C. Phase
- D. Resistance

v. Which oscillator uses a crystal for frequency stability?
- A. Colpitts oscillator
- B. Hartley oscillator
- C. RC oscillator
- D. Crystal oscillator

vi. IC 8038 is widely used as:

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A. Audio function generator
B. Voltage regulator
C. ADC converter
D. Counter IC

Q2) Solve any two questions **[12]**

a. Describe different differential amplifier configurations with suitable circuit diagrams. **[6]**

b. Eplain unity gain amplifier (voltage follower). **[6]**

c. Draw and Explain Schmitt trigger using Op-amp **[6]**

Q3) Solve any two questions **[12]**

a. explain a first-order Butterworth low-pass filter. **[6]**

b. Explain the design and working of a square wave generator using Op-Amp. **[6]**

c. Draw and explain the block diagram of IC 555 timer. **[6]**

Q4) Solve any two questions **[12]**

a. Explain the operation of Wein bridge oscillator and derive the condition for oscillation. **[6]**

b. Explain a second-order Butterworth high-pass filter. **[6]**

c. Describe the operation of IC 8038 as an audio function generator. **[6]**

Q5) Solve any two questions **[12]**

a. Compare low-pass, high-pass, band-pass, and band-reject filters. **[6]**

b. Describe the operation of a triangular wave generator with circuit diagram. **[6]**

c. Explain digital DC motor speed control using IC 1408 and IC 9500. **[6]**

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End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -
This Question Paper may be distributed for following Subjects as common code.
सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (1154) B.Tech. CBCS (119689) Linear Integrated Circuits Part 2 SEM 4
2] (11731) Bachelor of Technology (NEP-2.0) (116016) Linear Integrated Circuits Part 2 SEM 4