MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM
(Govt aided, Autonomous)
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
SECOND SESSIONAL EXAMINATION OCTOBER 2026
B24EE2T04 ELECTRONIC CIRCUITS II

S3 EA & EB

Time: 1.5hrs **Max Marks: 40**

PART A
Answer all questions, Each carry 3marks (3*4=12marks)

1. Illustrate ideal OpAmp integrator and its frequency response. (CO3)
2. Design an op-amp circuit to obtain an output of $V_o = -[\ 3\ V_1 + 2\ V_2 + 0.5\ V_3 + 5\ V_4\ ]$ where V_1, V_2, V_3 and V_4 are the inputs to op-amp. (CO3)
3. Design a Wein bridge oscillator with frequency 100 Hz using OpAmp. (CO4)
4. Illustrate the pin diagram of 555 timer IC and explain the function of each pin. (CO4)

PART B
Answer all questions, Each carry 14marks (2*14=28 marks)

5. a) With neat diagram explain the operation of RC phase shift oscillator using OpAmp. Elaborate on its frequency of oscillation and gain value. (8 marks)

   b) Illustrate the frequency response of a first order low pass Butterworth filter and analyse the gain equation. (6 marks) (CO3)

6. a) Illustrate the astable mode of operation of 555 timer IC using functional block diagram. (10 marks)

   b) Design a free-running multivibrator using 555 for a frequency of I kHz and a duty cycle of 60%.Choose C= 0.1μF. (4marks) (CO4)

Students will be able to
CO3: Analyze the working principle of OpAmp Oscillators, Multivibrators and various filters.
CO4: Analyze the working of 555 Timer, VCO and PLL ICs and design its applications.

VISION
Endeavour to Ensure Excellence
MISSION
Mould technically competent and morally strong Engineers
Achieve dynamic leadership through quality Education
Cater the needs of industry and community through Emulation
Empower the students to serve the nation with Dedication