MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM
(Govt aided,Autonomous)
DEPARTMENTOF ELECTRICAL AND ELECTRONICS ENGINEERING
B24EE2T04 ELECTRONIC CIRCUITS 11

S3 EA&EB

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

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

1. Analyze the transfer characteristics of E- MOSFET.
2. The threshold voltage of an n-channel enhancement type MOSFET is 0.5 V. The device is biased at a gate voltage of 3 V. Determine the drain voltage at which pinch-off will occur.
3. Illustrate the input terminals of op-amp.Why they are called so?
4. List out any 3 ideal characteristics of an ideal op-amp.

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

5. a) Explain the small signal model of Common Source E-MOSFET and derive voltage gain ,input impedance and output impedance. (CO1) (8 marks)

   b) Illustrate the internal diagram of CMOS NOR and analyze the working principle. (CO1)(6 marks)

6. a) Draw the the block diagram of a typical Op-Amp and elaborate its working. (CO2)(8marks)

   b) Illustrate a differential amplifier circuit and explain the different modes of operation. (CO2)(6marks)

Students will be able to
CO1: Understand the working principle of MOSFET and basic concepts of TTL & CMOS logic families
CO2: Understand the fundamentals of Op-amp and design op-amp circuits for various 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