

Hall Ticket Number:

--	--	--	--	--	--	--	--	--	--

KAMALA INSTITUTE OF TECHNOLOGY & SCIENCE, SINGAPUR

25EC28ES205

I B. Tech II Semester Regular Examinations, June – 2026

ELECTRONIC DEVICES AND CIRCUITS

(Common to AIML, CSE(DS), IT, CSE (Substitute))

Time: 3 Hours

Max. Marks: 60

Note: Question paper consists of Part-A & Part-B.

i) Part-A for 10M, ii) Part-B for 50marks

- Part A is compulsory, consisting of 5 sub questions from all units carrying equal marks.
- Part-B consists of 10 questions (numbered from 2 to 11) carrying 10 marks each. From each unit there are 2 questions and the students should answer one of them. Hence the student should answer 5 questions from Part-B.

PART-A (10Marks)			
Q.No	Questions	Marks	BTL
1.a)	Explain the applications of PN-Junction diode.	2M	2
1.b)	State relation between α, β and γ . ($\alpha = 0.98$ then find β, γ)	2M	3
1.c)	What is need for biasing.	2M	1
1.d)	Why h-parameters are called hybrid parameters where we use this model.	2M	1
1.e)	Define pinch off voltage & define difference between FET and MOSFET.	2M	1
PART-B (50Marks)			
Q.No	Questions	Marks	BTL
2. a)	Explain V-I characteristics of PN-Junction diode.	6M	2
b)	Draw the transfer characteristics of two-level clipper.	4M	3
OR			
3. a)	Explain full-wave rectifier with capacitor filter and derive expression for ripple factor.	7M	3
b)	State & prove clamping circuit theorem.	3M	2
4.	Explain common emitter configuration with input, output characteristics.	10M	2
OR			
5.	Compare the CB, CE, CC Configuration characteristics.	10M	4
6. a)	Explain AC & DC load line analysis of transistor.	6M	2
b)	Explain stability factors.	4M	1
OR			
7. a)	Explain voltage divider bias load line analysis.	6M	3
b)	Explain thermal runaway.	4M	1
8.	Derive all the hybrid parameters of common base amplifier	10M	3
OR			

9.	Draw and derive h-parameters for CE model with emitter bypass capacitor.	10M	4
10.a)	Explain the construction, operation and V-I characteristics of N-channel JFET.	6M	3
b)	Explain in detail enhancement mode N-channel MOSFET.	4M	2
OR			
11.a)	Explain principle of operation of SCR.	5M	2
b)	What is the principle used in photo diode.	5M	2