



Reg. No.:

Name:

University of Kerala

First Semester FYUGP Degree Examination, December 2025

Discipline Specific Core Course

ELECTRONICS

UK1DSCELE102 - Electronics Fundamentals

Academic Level: 100-199

2024 Admission onwards

Time: 2 Hours(120 Mins)

Max. Marks: 56

Part A.6 Marks:Time 5 Minutes.(Cognitive Level :Remember(RE)/Understand(UN)) Objective Type.1 mark each,
Answer all questions

Qn No.	Question	CL	CO
1	State for what AI stand for?	RE	1
2	Select the correct answer – “In an N type Silicon Semi conductor, the majority carriers and minority carriers are Options : A)Holes and electrons respectively B)Electrons and holes respectively C)Holes and holes respectively D)Electrons and electrons respectively	RE	2
3	Express the symbol of LED	UN	2
4	Discuss the role of electronics in Artificial Intelligence and IoT.	UN	1
5	Describe the function of the Base terminal in a transistor.	UN	3
6	PIV of a half wave rectifier is _____.	UN	4

Part B.10 Marks.Time:20 Minutes (Cognitive Level:Understand(UN)/Apply(AP))Two-three sentences.2 marks each.Answer all questions

Qn No.	Question	CL	CO
7	Explain the principle of operation of a BJT in amplifier mode.	UN	3
8	Distinguish Robotics and IOT.	UN	1
9	Interpret the symbol and structure of a PNP transistor.	AP	3
10	Prepare a simple circuit using an LED and explain its working.	AP	2
11	Interpret the condition on which zener diode maintains constant voltage	AP	2

Qn No.	Question	CL	CO

Part C.16 Marks.Time:35 Minutes.(Cognitive Level :Apply(AP)/Analyse(AN))Short Answer.4 marks each, Answer all 4 questions,choosing among options * within each question

Qn No.	Question	CL	CO
12	<p>A) Illustrate the concept of biometrics</p> <p>OR B) Apply the concept of biasing to describe <i>reverse bias</i> in a PN junction.</p>	AP	1, 2
13	<p>A) Using a comparison table, apply your understanding of transistor configurations to classify CB, CE, and CC based on input impedance, output impedance, current gain and voltage gain.</p> <p>OR B) Explain the concept of AR</p>	AP	3, 1
14	<p>A) Examine the V I characteristics of a zener diode.</p> <p>OR B) Examine the role of transistor as a switch</p>	AN	2, 3
15	<p>A) Examine different clamping circuits with proper diagrams.</p> <p>OR B) Analyze on various semiconductor diodes</p>	AN	4, 2

Part D.24 Marks.Time: 60 Minutes.(Cognitive Level :Analyse(AN)/Evaluate(EV)/Create(CR)) Long Answer 6 Marks each.Answer all 4 questions choosing among options * within each question

Qn No.	Question	CL	CO
16	<p>A) Analyse and compare the working of <i>half-wave</i> and <i>full-wave rectifiers</i> using waveforms and performance parameters.</p>	AN	4, 2

Qn No.	Question	CL	CO
	<p>OR</p> <p>B)</p> <p>Examine the concept of depletion region and barrier potential formation in a PN junction diode</p>		
17	<p>A)</p> <p>Evaluate the different types of Bipolar Junction Transistors (BJT) and their principle of operation.</p> <p>OR</p> <p>B)</p> <p>Evaluate the working of positive and negative clippers with appropriate circuit diagrams and waveforms</p>	EV	3, 4
18	<p>A)</p> <p>Compare a BJT and JFET.</p> <p>OR</p> <p>B)</p> <p>a) Compare the structure of NPN and PNP transistor.</p>	EV	3, 3
19	<p>A)</p> <p>Construct a PN junction diode and explain its characteristics in both forward and reverse bias condition</p> <p>OR</p> <p>B)</p> <p>Construct a biased negative series clipper that clips the input waveform below $-3V$. Provide the circuit diagram, biasing method and output waveform.</p>	CR	2, 4