Roll No. | | | | | | | | | | |

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. / B.Tech. (Full Time) END SEMESTER EXAMINATIONS , APRIL / MAY 2024

MECHANICAL ENGINEERING BRANCH
Third Semester
EC7354 - ELECTRONICS ENGINEERING
(Regulation 2015)

Time: 3 Hours | Answer ALL Questions | Max. Marks 100

PART- A (10 x 2 = 20 Marks)

Q.No	Questions	Marks
1.	Compare cut off region and active region.	2
2.	Define potential barrier.	2
3.	Define positive feedback.	2
4.	Draw the equivalent circuit of Wein bridge oscillator.	2
5.	List out the types of data converters.	2
6.	Draw the op-amp based circuit of non-inverting amplifier.	2
7.	Draw the truth table of mod-8 parallel binary counter.	2
8.	Why are universal gates called so?	2
9.	Define gauge factor.	2
10.	Draw the symbol of LED.	2

PART- B (5 x 13 = 65 Marks)

Q.No	Questions	Marks
11.	a) Explain the certain limiting values at which the PN junction diode will satisfactorily perform. Explain the V-I characteristics of a PN diode under forward bias.	13
	OR	
	b) Explain the mechanisms of breakdown of Zener diode. Explain the operation of an NPN transistor.	13
12.	a) Write the mathematical substantiation using general and equivalent circuits of Hartley oscillator.	13
	OR	
	b) Give a suitable derivation to explain the frequency of oscillation using the transistor Colpitts oscillator circuits.	13
13.	a) Explain the DAC circuitry using op-amp with binary weighted resistors and R-2R ladder respectively.	13
	OR	
	b) Explain the ADC circuitry for successive approximation and flash types.	13
14.	a) Show the logic diagram and the truth table of negative edge triggered JK flip-flop and clocked RS flip-flop.	13
	OR	
	b) Explain the various types of registers depending upon the way in which data is entered and retrieved.	13
15.	a) Explain the resistance-temperature characteristics of thermistor. Explain the construction of LVDT.	13
	OR	
	b) Draw the schematic diagrams of various strain gauges.	13

PART- C (1 x 15 = 15 Marks)

Q.No	Questions	Marks
16.	Explain the input and output characteristics of BJT CE configuration with a suitable circuit diagram.	15