BT MRE-III(R/S)-11-22-2022 Reg. No. | | | | | | | | |

C

B.Tech. Degree III Semester Regular/Supplementary Examination in Marine Engineering November 2022

19-208-0304 MARINE ELECTRONICS

(*2019 Scheme*)

Time: 3 Hours Maximum Marks: 60

Course Outcome

On successful completion of the course, the students will be able to:

CO1: Understand the circuit and working of Power amplifiers, Operational Amplifiers and linear Op-amp circuits.

CO2: List and explain the different number system and their conversions, binary codes and Boolean algebra. To acquire knowledge on logic gates and its application in digital circuits like multiplexers, flip-flops, counters and registers.

CO3: Learn analog to digital converters and digital to analog converters and basic programming of 8085 microprocessor

CO4: Understand the basic structure and working of semiconductor memories and Industrial electronics devices.

CO5: Gain basic knowledge on communication system and its application in different communication system.

Bloom's Taxonomy Levels (BL): L1 – Remember, L2 – Understand, L3 – Apply, L4 –Analyze, L5 – Evaluate, L6 – Create

PO – Programme Outcome

			(5 × 15 = 75) Marks	BL	CO	PO
I.	(a)	With a neat circuit explain Class B power Amplifier.	7	L1	1	1.3.1
	(b)	Elaborate on ideal Op-Amp Characteristics.	8	L1	1	1.3.1
		OR				
II.	(a)	What is the effect of feedback in Op-Amps? Draw and explain inverting type of op-amp and find its gain equation.	7	L1	1	1.3.1
	(b)	Explain CMRR and slew rate with neat circuits.	8	L2	1	1.3.1
III.	(a)	Reduce the following expressions using Boolean postulates, laws and axioms. $(A+B+C)(A+B+\overline{C})+\overline{(A+B).(A+C)}$.	6	L3	2	1.3.1
	(b)	What is flip flop? Explain S-R flip flop. Which flip flop is used to make counters and why? Explain 3-bit negative edge triggered Up counter using suitable flip flop.	9	L3	2	1.3.1
		OR				
IV.	(a)	Explain Multiplexers. Write the expressions and truth table for 4:1 MUX and implement it using gates. Implement the logic function using MUX $F = \Sigma m(1,2,3,4,7)$ and draw its truth table.	9	L4	2	1.3.1
	(b)	Perform 1's and 2's complement subtraction (14.75)10 – (15.5)10.	6	L3	2	1.3.1
V.	(a)	Draw and explain the architecture of 8085 microprocessor.	8	L1	3	1.3.1
	(b)	Write an assembly language program to find the square root(take to account only perfect squares) of a number stored at memory location 8080H and store the result at 8081H.	7	L3	3	1.3.1
		OR				
VI.	(a)	Explain successive approximation type ADC.	7	L1	3	1.3.1
	(b)	Elaborate on 3-bit R-2R ladder type DAC.	8	L2	3	1.3.1

(P.T.O.)

			Marks	BL	CO	PO
VII.		Discuss how can you store and retrieve a word from RAM, ROM and PROM.	15	L1	4	1.3.1
		OR				
VIII.	(a)	Explain CMOS NAND gate.	7	L1	4	1.3.1
	(b)	How SCR can act as a rectifier?	8	L1	4	1.3.1
IX.	(a)	What is modulation? Explain the need of modulation. Elaborate on types of modulation.	8	L1	5	1.3.1
	(b)	With a neat block diagram explain super heterodyne receiver.	7	L1	5	1.3.1
		OR				
X.		Explain satellite communication as applicable to GMDSS.	15	L1	5	1.3.1

Bloom's Taxonomy Levels
L1 = 65%, L2 = 10%, L3 = 19%, L4 = 6%

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