BT MRE-III(R/S)-11-23-3009 Reg. No. | | | | | | | | |

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B.Tech. Degree III Semester Regular/Supplementary Examination in Marine Engineering November 2023

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

PI – Programme Indicators

Answer ***ALL*** questions (5 × 15 = 75)

			Marks	BL	CO	PI
I.	(a)	Differentiate Class A and Class B power amplifiers.	7	L1	1	1.3.1
	(b)	Explain the concept of Differential Amplifiers.	8	L1	1	1.3.1
		OR				
II.	(a)	Elaborate on input offset voltage, CMRR and slew rate of an Op-Amp.	7	L1	1	1.3.1
	(b)	Explain any two linear Op-Amp Circuits with neat circuit diagrams.	8	L2	1	1.3.1
III.	(a)	Convert $(37.93)_{10}$ to octal form.	3	L3	2	1.3.1
	(b)	What is gray code? Convert $(5A)_{16}$ to gray code.	3	L3	2	1.3.1
	(c)	Explain De-Morgan's theorem and Duality principle. Minimise the expression using Boolean postulates and laws. $F = \overline{A\bar{B}C + B + B\bar{D} + AB\bar{D} + \bar{A}C}$	9	L3	2	1.3.1
		OR				
IV.	(a)	What are registers? Which flipflop is used to make registers and Why? Explain PISO shift registers.	10	L4	2	1.3.1
	(b)	Explain JK flip-flop? Elaborate the condition when JK = 11.	5	L3	2	1.3.1

(P.T.O.)

			Marks	BL	CO	PI
V.	(a)	Explain the terms Quantization and Sampling. Draw and explain any one analog to digital converter.	10	L1	3	1.3.1
	(b)	Explain flag register of 8085 microprocessor with an example.	5	L2	3	1.3.1
		OR				
VI.	(a)	Write an assembly language program to find whether the given 8 bit number located at memory 9000H is even or odd. If even store ABH at 9001H else store BAH at 9001H.	7	L3	3	1.3.1
	(b)	Elaborate on different registers, interrupts, data bus and control bus in 8085 microprocessor.	8	L1	3	1.3.1
VII.		Write a short note on Semiconductor memories.	15	L1	4	1.3.1
		OR				
VIII.	(a)	With a neat circuit explain CMOS NAND gate.	9	L2	4	1.3.1
	(b)	How SCR performs rectification.	6	L2	4	1.3.1
IX.	(a)	Explain the block diagram of monochrome TV transmitter and receiver.	10	L1	5	1.3.1
	(b)	Explain Pulse modulation.	5	L1	5	1.3.1
		OR				
X.	(a)	With a neat block diagram explain AM transmitter and receiver.	10	L1	5	1.3.1
	(b)	Comment the advantages of using high frequency carrier signal in modulation.	5	L2	5	1.3.1

Bloom's Taxonomy Levels
L1 = 53.33%, L2 = 22%, L3 = 18%, L4 = 6.67%.

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