BT MRE-III(R/S)-11-24-3441 Reg. No. | | | | | | | | |

C

B.Tech. Degree III Semester Regular/Supplementary Examination in Marine Engineering November 2024

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)	Explain how power amplifier is different from voltage amplifier. Discuss the techniques used to disperse the heat generated by power amplifier.	8	L2	1	1
	(b)	With a neat circuit diagram explain class AB power amplifier.	7	L2	1	1
		OR				
II.	(a)	Explain using a neat circuit integrator and differentiator using operational amplifier.	8	L1	1	1
	(b)	Discuss on operational amplifier and ideal operational amplifier characteristics in detail. Explain how it is different from practical operational amplifier.	7	L2	1	1
III.	(a)	Using Boolean postulates, laws and axioms prove that $A\bar{B}C + B + B\bar{D} + AB\bar{D} + \bar{A}C = B + C$.	8	L3	2	1
	(b)	What are Registers? Explain 4 bit SIPO right shift register with neat sketch.	7	L3	2	1
		OR				
IV.	(a)	Explain S-R flip flop. Explain its advantages and disadvantages. Explain how can you overcome the disadvantages.	8	L4	2	1
	(b)	Derive XOR gate from NAND and NOR gates.	7	L3	2	1

(P.T.O.)

			Marks	BL	CO	PI
V.	(a)	Explain the different registers of 8085 microprocessor. Explain flag register with an example.	8	L2	3	1
	(b)	Explain counting type ADC. Explain how it is different from tracking type ADC.	7	L2	3	1
		OR				
VI.	(a)	Write an assembly language program to evaluate the expression $Z=3+X^2$, where X is a number available at memory location 9000 H. Store the result in 9001 H. (Discard the carry).	10	L3	3	1
	(b)	Elaborate the need of DAC. Explain any one application.	5	L2	3	1
VII.	(a)	With a neat circuit explain CMOS NOR gate.	8	L2	4	1
	(b)	Explain how reading and writing operation is performed in a RAM.	7	L2	4	1
		OR				
VIII.	(a)	Explain PROM in detail.	9	L2	4	1
	(b)	Elaborate on photo electric effect. Explain any one application.	6	L2	4	1
IX.	(a)	Explain AM radio transmitter system using a neat block diagram.	7	L1	5	1
	(b)	Differentiate the terms modulation and demodulation. Explain AM, FM and PM in detail.	8	L2	5	1
		OR				
X.	(a)	Explain satellite communication system using a neat block diagram.	8	L1	5	1
	(b)	Describe the importance of GMDSS onboard ship. Explain any two GMDSS equipment used onboard ship.	7	L2	5	1

Blooms's Taxonomy Level
L1 – 16%, L2 – 58%, L3 – 21%, L4 – 5%.

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