Reg. No. ☐☐☐☐☐☐☐☐

B

B.Tech. Degree IV Semester Examination in Marine Engineering May 2019

MRE 1404 MARINE ELECTRONICS
(2013 Scheme)

Time : 3 Hours

Maximum Marks : 100

(5 x 20 = 100)

I.	(a)	What is a power amplifier? Explain the different performance parameters of power amplifiers.	(10)
	(b)	Draw the circuit of a class A power amplifier and explain its working. Derive the expression for its output power and efficiency.	(10)

OR

II.	(a)	Explain the block diagram of an operational amplifier.	(5)
	(b)	Explain with a neat circuit diagram inverting op-amp amplifier and derive the expression for voltage gain.	(10)
	(c)	Define CMRR in connection with op-amp. Explain its significance.	(5)

III.	(a)	Draw and explain 3-bit synchronous up counter.	(10)
	(b)	Draw and explain the working of a J-K master slave flip-flop.	(10)

OR

IV.	(a)	What is ADC? Explain with a neat diagram any one type of ADC.	(10)
	(b)	What are universal gates? Derive AND, OR, NOT, XOR, gates from universal gates.	(10)

V.	(a)	Explain NAND and NOR gates using TTL logic.	(10)
	(b)	Write notes on: (i) LEDs (ii) LCDs (iii) Photo-diodes (iv) Opto-couplers.	(10)

OR

VI.	(a)	Explain the construction and working of SCR? Also draw its V-I characteristics and explain.	(10)
	(b)	Write notes on semiconductor memories.	(10)

VII.	(a)	What is modulation and demodulation? Explain the need for modulation. Explain the different types of modulation.	(10)
	(b)	With a neat block diagram explain RADAR.	(10)

OR

VIII.	(a)	With a block diagram explain television system.	(10)
	(b)	Explain the principle of a radio receiver with a neat schematic.	(10)

IX.	(a)	Explain the architecture of 8085 microprocessor.	(12)
	(b)	Write an assembly language program to find whether the number stored in memory location 9000H is even or odd. If even print 00H else FFH in memory location 900 1H	(8)

OR

X.	(a)	Write an assembly language program to find the square root of a number stored in memory location 9000H and store the result in 9001H.	(7)
	(b)	Draw and explain Flag register.	(6)
	(c)	Write an assembly language program to interface a motor with 8085 microprocessor.	(7)

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