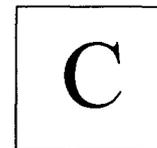


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***B.Tech. Degree IV Semester Examination in
Marine Engineering June 2014***

MRE 404 MARINE ELECTRONICS

Time : 3 Hours

Maximum Marks : 100

- (5 x 20 = 100)
- I. (a) Draw and explain the circuit of class B push pull amplifier. Give the advantages of class B amplifier. How will you overcome these disadvantages? (14)
- (b) Explain ideal op - amp (6)
- OR**
- II. Explain the following: (4 x 5 = 20)
- (i) Heat sink design (ii) Transistor dissipation
- (iii) Concept of differential amplifier (iv) Practical complementary of amplifier.
- III. (a) Express the following functions as sum of minterms and product of maxterms. (10)
- (i) $F(A,B,C,D) = \bar{B}D + \bar{A}D + BD$
- (ii) $F(x,y,z) = (xy+z)(xz+y)$
- (b) What are universal gates? Implement NOT, AND, OR, XOR, XNOR by using universal gates. (10)
- OR**
- IV. (a) Implement the following function with MUX (6)
- $F(a,b,c) = \sum m(1,3,5,6)$
- (b) Explain serial IN parallel out and parallel IN and serial OUT shift register with necessary diagrams and waveforms. (7)
- (c) Design a 2 bit ripple down counter using negative edge triggered. (7)
- V. (a) Draw the circuit diagram, explain the logical working of TTL totem pole NAND gate. (10)
- (b) What are the advantages and disadvantages of totem-pole output? (5)
- (c) What are the merits and demerits of TTL. (5)
- OR**
- VI. (a) How can memory be classified? Explain it. (13)
- (b) Explain about the photoelectric devices. (7)
- VII. (a) Explain about Radar Communication. (10)
- (b) Briefly explain the importance of modulation and compare between modulation and demodulation. (10)
- OR**
- VIII. (a) Explain the importance of super heterodyne receivers in communication system with the help of a neat block diagram. (12)
- (b) Explain FM modulation. (8)
- IX. Explain the following: (4 x 5 = 20)
- (i) Voltmeter (ii) Signal generator
- (ii) Frequency meter (iv) 2 meter.
- OR**
- X. Explain the working of CRO with a neat diagram. (20)