

## ***B. Tech Degree IV Semester Examination in Marine Engineering, June 2009***

### **MRE 404 MARINE ELECTRONICS**

Time : 3 Hours

Maximum Marks : 100

- I. (a) Enumerate the different classes of power amplifiers and theoretically evaluate the efficiency of a Class A power amplifier. (10)  
 (b) Define crossover distortion and explain how this can be eliminated. (5)  
 (c) With a neat circuit diagram explain the working of differential amplifier. (5)
- OR**
- II. (a) With the help of a neat circuit diagram explain the working of push pull amplifier. (12)  
 (b) What do you mean by complementary symmetry in transistors and how is it relevant in power amplifiers. (8)
- III. (a) Implement the given function using minimum number of gate  

$$f = \bar{x}_1 \bar{x}_2 \bar{x}_3 + \bar{x}_1 \bar{x}_2 x_3 + x_1 x_2 x_3 + x_1 x_2 \bar{x}_3.$$
 (7)  
 (b) With the help of a neat logic circuit diagram and truth table explain the working of a JK flip flop. (13)
- OR**
- IV. (a) Differentiate between registers, counters and multiplexers. (6)  
 (b) With the help of a neat circuit diagram explain the working of a mod 10 counter using JK flip flops. (14)
- V. Write short notes on :  
 (i) RAM (ii) ROM (iii) PROM (20)
- OR**
- VI. (a) With the help of VI characteristics explain the principle of operation of SCR. (12)  
 (b) With the help of diagram and wave form, explain the working of fully controlled rectifier. (8)
- VII. (a) State the reasons for modulating the signals in communication system. (4)  
 (b) With the help of a neat block diagram explain the working of an AM receiver. (16)
- OR**
- VIII. (a) Differentiate between AM and FM. (8)  
 (b) Explain pulse communication and why is it advantageous. (12)
- IX. Write short notes on :  
 (i) CRO  
 (ii) DVM  
 (iii) Frequency meter (20)
- OR**
- X. Write short notes on :  
 (i) Multimeter  
 (ii) Signal generator  
 (iii) Q meters. (20)