

**Indian Maritime University**  
(A Central University, Government of India)  
**End Semester Examinations June/July 2019**  
**B.Tech. (Marine Engineering)**  
**Semester- III**  
**Electronics (UG11T1302 / UG11T2302)**

Date: 11.07.2019  
Time: 3 Hrs

Maximum marks: 100  
Pass Marks: 50

**Part A (10 × 3 = 30 Marks)**  
**All Questions are compulsory**

1. (a) Differentiate positive and negative feedback in transistor amplifier circuit.
- (b) Define stability factor.
- (c) Why oscillators circuit are using positive feedback?
- (d) What are the performance quantities of power amplifiers?
- (e) Draw the circuit diagram of negative clipping circuit with input as sinusoidal signal. Show the output.
- (f) Using NAND gate, show AND gate.
- (g) Explain TTL.
- (h) Draw the VI characteristics of SCR.
- (i) What are the forms of phase modulation?
- (j) Draw the pin diagram of IC 555.

**Part B (5 × 14 = 70 Marks)**  
**Answer any five of the following**

2. (a) Derive the equation for Stability factor. State which biasing technique is more stable? Justify your answer. (7)
- (b) Discuss the advantage and disadvantage of base resistor method of biasing transistor. (7)
3. (a) Explain the working principle of clamper circuit, with neat sketch. (7)
- (b) Draw the basic circuit of a differential amplifier & discuss its operation. (7)
4. (a) Implement the following Boolean function with a multiplexer 8 × 1. (7)
- $F = \sum (0, 2, 5, 7, 11, 14)$
- (b) Draw and discuss the operation of flash type ADC. (7)
5. (a) Write a short note on semiconductor memories. (7)

- (b) Draw the 1 – phase half bridge inverter circuit with simple switch, explain the operation and show the input and output waveforms. (7)
6. (a) Discuss transistor as modulator. (7)
- (b) Draw the block diagram of FM receiver and explain the function of each block. (7)
7. (a) Draw the neat sketch of cathode ray oscilloscope and discuss its operation. (7)
- (b) Draw the circuit diagram of transistor series voltage regulator and discuss its operation. (7)
8. (a) Draw the architecture of 8085. (7)
- (b) Discuss transistor as switch. (7)