

**Indian Maritime University**  
( A Central University, Govt. of India)  
**B.Sc. (Nautical Science)**  
**END SEMESTER EXAMINATIONS- JUNE/JULY 2019**  
**SEMESTER-III**  
**NAUTICAL ELECTRONICS PAPER-II**  
**UG21T2305**

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Date: 04.07.2019

Maximum marks: 70

Duration: 3 Hrs

Pass Marks: 35

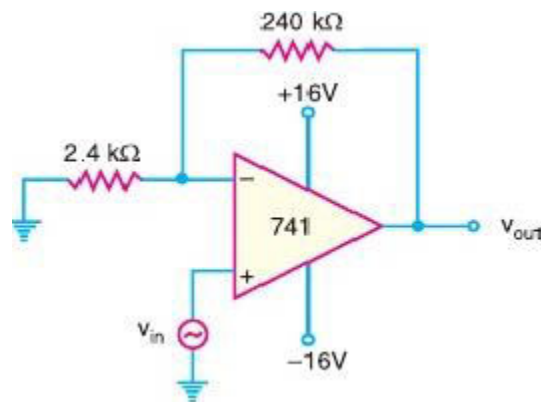
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**Part A (7 x 10 = 70 Marks)**

**Answer any seven of following**

1. (a) Draw a circuit of practical CE amplifier. (5)  
(b) Describe base resistor transistor biasing circuit. (5)
  
2. (a) Explain DC load line of transistor. (5)  
(b) In a transistor circuit, collector load is 4 k $\Omega$  whereas quiescent current (zero signal collector current) is 1mA. What is the operating point if  $V_{cc} = 10$  V? What will be the operating point if  $R_C = 5$  k $\Omega$ ? (5)
  
3. (a) Explain AC load line of transistor. (5)  
(b) A three-stage amplifier has a first stage voltage gain of 100, second stage voltage gain of 200 and third stage voltage gain of 400. Find the total voltage gain in db. (5)
  
4. (a) Discuss the frequency response of amplifier circuit. (5)  
(b) Draw the d.c. and a.c. equivalent circuits of a transistor amplifier. (5)
  
5. (a) With neat diagram, explain the action of Hartley oscillator. (5)  
(b) in the phase shift oscillator circuit  $R_1=R_2=R_3=1M\Omega$  and  $C_1=C_2=C_3=68PF$ . At what frequency does the circuit oscillate? (5)

6. (a) what is called feedback? Differentiate positive and negative feedback. (5)
- (b) what is oscillator? What is its need? discuss the advantages of oscillators? (5)
7. (a) Give the block diagram of an operational amplifier. (5)
- (b) Calculate the output voltage from the noninverting amplifier circuit shown in Fig. for the input of  $140 \mu\text{V}$ . (5)



8. (a) Describe the operation of Differentiator circuit using opamp. (5)
- (b) List the ideal characteristics of Operational Amplifier. (5)
9. (a) Explain the difference between a voltage and a power amplifier. (5)
- (b) write a short note on emitter follower circuit. (5)