

INDIAN MARITIME UNIVERSITY
(A Central University, Govt. of India)
End Semester Examinations-Dec/Jan.2019-20
B. Sc (Nautical Science)
Semester III
Nautical Electronics Paper –II (UG21T2305)

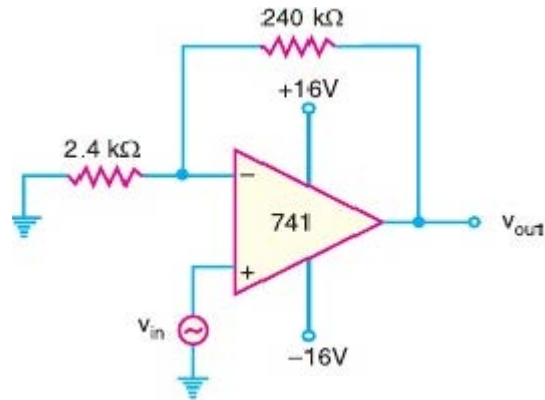
Date: 13-12-2019
Time:3 Hrs.

Max.Marks:70
Pass Marks:35

Answer any seven of following, all carry equal marks.

1. (a) Draw a circuit of practical CE amplifier. Explain the function of each component. (5)
(b) Describe Base Resistor biasing circuit. (5)
2. (a) Explain DC load line of transistor. (5)
(b) In a transistor circuit, collector load is $4\text{k}\Omega$ whereas quiescent current (zero signal collector current) is 1 mA. Determine,
(i) the operating point if $V_{cc}=10\text{ V}$?
(ii) the operating point if $R_c =5\text{ k}\Omega$? (5)
3. (a) Explain AC load line of transistor. (5)
(b) A three- stage amplifier has a first stage voltage gain of 200, second stage voltage gain of 400 and third stage voltage gain of 600. 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 Colpitt's oscillator. (5)
(b) A phase shift oscillator uses 5 pF capacitors. Find the value of R to produce a frequency of 800kHz. (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 non-inverting amplifier circuit shown in figure below for the input of $120 \mu\text{V}$. (5)



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

* * *