

INDIAN MARITIME UNIVERSITY
Time Bound Assignment
B Tech (ME) Arrear Examinations
September/October 2020
UG11T3302
Analog Electronics and Communication

Date: 10/09/2020
Duration: 3 Hrs

Max Marks: 70
Pass Marks: 35

Part – A (compulsory)
Answer the following (10x2=20 Marks)

1. Draw a fixed bias CE mode amplifier circuit and show all current and voltage parameter in generic term.
2. Why is the FET called unipolar transistor?
3. An audio amplifier works over the frequency range of ____ to ____.
4. Draw equivalent electrical circuit of piezoelectric crystal used in oscillator.
5. What is astable multivibrator? Draw its output wave form.
6. State the characteristics of an ideal OPAMP.
7. Draw an equivalent circuit diagram of a practical OPAM.
8. Draw an inverting adder using OPAMP, and derive its output.
9. A Thyristor is normally in the ____ state and move to the ____ state when a positive trigger pulse is applied.
10. Draw a Block diagram of AM radio transmitter system and label it.

Part – B

Answer any 5 out of 7 questions (5 x 10= 50 marks)

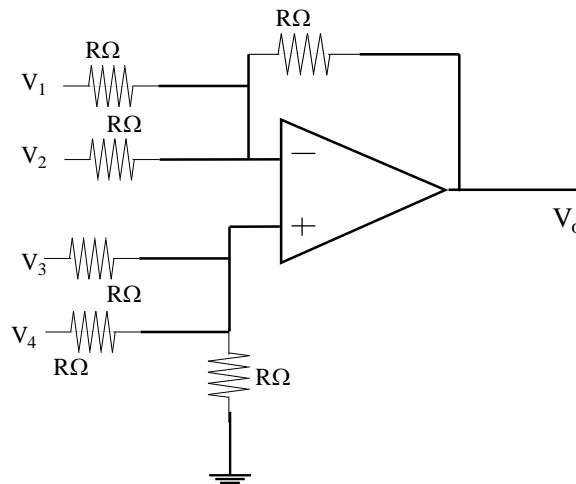
11. a) Derive the expression of output impedance in case of current-shunt negative feedback amplifier. **(5 marks)**
b) Find the input resistance of Fixed Bias Amplifier. **(5 marks)**
12. a) With a suitable block diagram explain the basic principal of signal generator. **(5 marks)**
b) A piezoelectric crystal used in a crystal oscillator is resonant at 450KHz. For this frequency its equivalent inductance and series resistance are 3.5H and 9.05K Ω respectively. What is the Q of the crystal? **(5 marks)**

13. a) Draw a circuit diagram of wine bridge oscillator. Write the advantages of wine bridge oscillator. **(5 marks)**

b) Explain the operation of clipper? And also show in circuit diagram how to vary clipping voltage level of any wave form. **(5 marks)**

14. a) With circuit diagram explain the working of Schmitt trigger using OPAMP. **(5 marks)**

b) Find the output voltage V_o of the circuit shown below. **(5 marks)**



15. a) With suitable circuit diagram and wave form explain a half wave rectifier using SCR. **(5 marks)**

b) Explain a monostable multivibrator using 555 Timer IC. **(5 marks)**

16. a) Discuss some uses of RADER. **(5 marks)**

b) Explain the envelop detector to detect (demodulate) AM signal. **(5 marks)**

17. a) A FM transmitter sends out a 100MHz carrier wave frequency modulated by a 15KHz sinusoidal audio signal. The maximum frequency deviation is 30KHz. Find 1) the modulation index 2) the three significant pair of side frequencies. **(5 marks)**

b) What are the fundamental differences among Class-A, Class-B, Class-AB and Class-C amplifier? **(5 marks)**

* * * * *