PRESIDENCY UNIVERSITY
BENGALURU

SET B

SCHOOL OF ENGINEERING
END TERM EXAMINATION - JAN 2024

Semester : Semester III - 2022

Course Code : EEE2009

Course Name : Analog Electronics Circuits

Program : B.Tech.

Date : 08-JAN-2024

Time : 9:30AM - 12:30 PM

Max Marks : 100

Weightage : 50%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.
(iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS   5 X 2M = 10M

1. **In a common base connection, α = 0.95. The voltage drop across 2 kΩ resistance which is connected in the collector is 2V. Find the base current.**

   (CO1) [Knowledge]

2. **In a common base connection, IE = 1mA, IC = 0.95mA. Calculate the value of IB .**

   (CO1) [Knowledge]

3. Explain with a circuit of Series Negative Clipper.

   (CO2) [Knowledge]

4. What is clamper and its application?

   (CO2) [Knowledge]

5. Find the value of β if (i) α = 0.9 (ii) α = 0.

   (CO3) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS   5 X 10M = 50M

6. Calculate the Vdc,Vr(rms) through a 1KOhm load connected to a half-wave rectifier circuit shown in fig

   (CO1,CO3) [Comprehension]

7. To achieve maximum voltage gain, which is the most suitable transistor configuration for cascading? and brief the same.

(CO3,CO1) [Comprehension]

8. Design a Colpitts oscilator using the data given below:
A 1 mH inductor is available. Choose the capacitor values in a Colpitts oscillator so that f = 1 MHz and mv = 0.25.

(CO3,CO1) [Comprehension]

9. Prakash conducted experiment in a laboratory and Produce a oscillation using Colpitts Oscillator.Discuss the operation of Colpitts Oscillator.

(CO4,CO3,CO1) [Comprehension]

10. A 1 pF capacitor is available. Choose the inductor values in a Hartley oscillator so that f = 1 MHz and mv = 0.2.

(CO5,CO3,CO1) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS   **2 X 20M = 40M**

11. A JFET in Fig. 4 has values of VGS (off) = – 8V and IDSS = 16 mA. Determine the values of VGS, ID and VDS for the circuit

(CO2,CO3) [Application]

12. In an n-channel JFET biased by potential divider method, it is desired to set the operating point at ID = 2.5 mA and VDS = 8V. If VDD = 30 V, R1 = 1 MΩ and R2 = 500 kΩ, find the value of RS. The parameters of JFET are IDSS = 10 mA and VGS (off) = – 5 V

(CO3,CO4) [Application]