PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING

MAKE UP EXAMINATIONS DECEMBER 2025

Semester: MK

Course Code: EEE 2009

Course Name: Analog Electronics Circuits

Program: B. Tech

Date: 26-12-2025

Time: 09:30am – 12:30pm

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 any 3 Questions. (3Qx 5M= 15M)

1. What is clipping. Draw any to clipping circuit and explain the output waveforms with equations
(C.O.No.2) [Knowledge]

2. Draw the circuit for Hartley oscillator circuit and write the relevant equations to calculate the frequency. (**C.O.No.3) [Comprehension]**

3. With a neat figure explain the half wave rectifier, working and waveforms
(C.O.No. 3) [Comprehension]

4. With a neat figure explain characteristics of PN junction diode and mark the important points
(C.O.No. 1) [Comprehension]

Part B

Answer ANY 2 the Questions. (2Qx20M=40M)

5. Define biasing. Draw a Fixed bias circuit derive the expression for I_B. I_C and V_{CE}. If the RB = 1MΩ, RC = 10KΩ. B = 100. Draw the circuit for the same
(C.O.No.2) [Comprehension]

6. Power amplifier raises the power level of the signal. Power amplifier is also called large signal amplifiers.
   a. Identify the power amplifier are having largest efficiency.
   b. Consider and power amplifier which gives a square wave output. Can you name this power amplifier?
   c. Draw the circuit identified in part b of this question and explain its working
(C.O.No. 4) [Comprehension]

7. With a neat Figure explain the working of the Metal Oxide Silicon Field Effect Transistor. Sketch its input and the output characteristics for the MOSFET. Differentiate between depletion and enhancement modes of operation. **(C.O.No. 3) [Comprehension]**

Part C

Answer ANY 3 Questions.   **(3Qx15M=45M)**

8. Power amplifier raises the power level of the signal. Power amplifier is also called large signal amplifiers. Draw the class AB power amplifier and explain its working.

                                       (C.O.No.4) [Comprehension]

9. For an n-channel JFET draw the characteristics IDSS = 100mA, Vp = -4V. Determine the drain current for For VGS = -1V. Find rd if ro = 1KΩ. Find the amplification factor .

                                       (C.O.No.1) [Comprehension]

10. FETs is or field effect transistors and popular because of their size, power consumption and speed. For an n-channel JFET IDSS = 100mA, Vp = -3V.

         a. For VGS = -3V. Determine the value of Id,
         b. Find rd if ro = 1KΩ
         c. Find the amplification factor
         d. Draw the drain and transfer characteristics

                               (C.O.No.1) [Comprehension]

11. Differentiate between positive and negative feedback circuits. With a neat figure derive the general expression for gain of a feedback amplifier   **(C.O.No. 4) [Comprehension]**

12. Explain the necessity of transistor biasing in amplifiers. For Fixed Bias Compute the circuit parameters, I_B, I_C, V_{CE}, V_B, V_C, V_{BC}. Assume V_{BE} = 0.3V and β= 100. Let R_B = 200KΩ, R_C = 1.2KΩ, V_{CC}= 10 V.

                                       (C.O.No.2) [Comprehension]