**Q.P. Code: 16EC407** **R16**

**Reg. No:** | | | | | | | | | | |

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**

(AUTONOMOUS)

**B.TECH II Year II Semester (R16) Supplementary Examinations December 2018**

**ELECTRONIC CIRCUIT ANALYSIS**

(ECE)

Time: **3 hours** Max. Marks: **60**

(Answer all Five Units **5 X 12 = 60** Marks)

**UNIT-I**

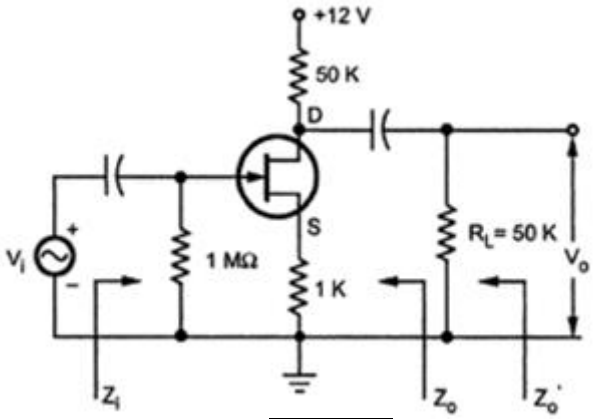
**1** **a** A voltage source of internal resistance $R_s$ = 900Ω drives a CC amplifier using load resistance $R_L$=2000Ω. The CE h parameter are $h_{fe}$ = 60, $h_{ie}$ = 1.2k, $h_{oe}$ = 25μ A/V and $h_{re}$ = 2 x $10^{-4}$. Compute $A_I$, $R_i$, $A_v$ and $R_0$ using approximate analysis 8M

**b** Compare the transistor amplifier parameters for CE, CB and CC configurations. 4M

**OR**

**2** **a** Derive input impedance, output impedance and voltage gain of JFET Common Source amplifier with voltage divider bias for bypassed $R_s$. 6M

**b** For the circuit shown in Fig. determine input impedance, voltage gain, output impedance $Z_0$ and $Z_0$'. Assume for FET $g_m$ = 2mA/V, $r_d$ = 10kΩ. 6M




**UNIT-II**

**3** Derive the expression for CE Short circuit current gain with the help of necessary circuit diagrams and approximations. 12M

**OR**

**4** Derive the expression for Current gain with RL and explain the variation of frequency response with RL. 12M

**UNIT-III**

**5** Describe different methods used for coupling multistage amplifiers with their frequency response. 12M

**OR**

**6** **a** Draw the block diagram of n-stage cascaded amplifier and analyze its various parameters. 10M

**b** List the classification of amplifiers. 2M

**UNIT-IV**

**7** **a** A voltage series negative feedback amplifier has a voltage gain without feedback of A = 500, input resistance $R_i$ = 3kΩ, output resistance $R_0$ = 20kΩ and feedback ratio β = 0.01. Calculate the voltage gain $A_f$, input resistance $R_{if}$, and output resistance $R_{of}$ of the amplifier with feedback. 8M

**b** Classify the different types of oscillators. 4M

**OR**

| | | | |
|---|---|---|---|
| **8** | **a** | Determine the input and output resistances of Current Series feedback amplifier. | 6M |
| | **b** | Explain Feedback topologies. | 6M |

**UNIT-V**

| | | | |
|---|---|---|---|
| **9** | **a** | Discuss Double Tuned Amplifier with neat diagram and derive the expression for its bandwidth. | 6M |
| | **b** | With neat diagram explain Series fed, Directly coupled Class A Power Amplifier and derive its maximum efficiency. | 6M |

**OR**

**10** A class B push pull amplifier supplies power to a resistive load of 12Ω. The output transformer has a turns ratio of 3:1 and efficiency of 78.5%. Obtain

(i) Maximum power output,
(ii) Maximum power dissipation in each transistor and
(iii)Maximum base and collector current

For each transistor. Assume hfe = 25 and VCC= 20V. 12M

***** END *****