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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR  
(AUTONOMOUS)

B.Tech II Year II Semester Supplementary Examinations Dec 2019

**ANALOG ELECTRONIC CIRCUITS**

(Electrical & Electronics Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 Draw the circuit diagram of two stage RC coupled transistors amplifiers. Explain the operation and calculate the mid frequency range and low frequency range. 12M

**OR**

- 2 a Explain the calculation of band width of single and multi stage amplifier. 7M  
b Derive the expression for voltage gain of cascade amplifier. 5M

**UNIT-II**

- 3 a Derive the expression for gain, input resistance and output resistance for voltage series feedback amplifier. 8M  
b A voltage series negative feedback amplifier has a voltage gain without feedback of  $A=50$ , input resistance  $R_i=2K\Omega$ , output resistance  $R_o=15K\Omega$  and feedback ratio of 0.01. Calculate the voltage gain, input resistance and output resistance of the amplifier with feedback? 4M

**OR**

- 4 a Explain the concept of feedback with block diagram. 6M  
b Explain the stability of ac gain in feedback amplifiers. 6M

**UNIT-III**

- 5 a Draw the circuit diagram of tuned collector oscillator and explain its working. 7M  
b A tuned collector oscillator in a radio receiver has a fixed inductance of  $60\mu H$  and has to be tunable over the frequency band of 400 to 1200 kHz. Find the range of variable capacitor to be used. 5M

**OR**

- 6 a Draw the circuit diagram of a Colpitts Oscillator and explain the principle of operation. 7M  
b Find the frequency of the oscillations of a transistorized Colpitts oscillator having  $C_1 = 150\text{ pF}$ ,  $C_2 = 1.5\text{ nF}$  and  $L = 50\mu H$ . 5M

**UNIT-IV**

- 7 a Draw the circuit diagram of push pull class B amplifier and explain its working principle. 7M  
b In a class B amplifier,  $V_{CE}(\text{min}) = 1\text{ V}$  and supply voltage  $V_{CC} = 18\text{ v}$ . Find the collector circuit efficiency. 5M

**OR**

- 8 a Write short note on series fed class A amplifier. 6M  
b what is crossover distortion? Explain. 6M

**UNIT-V**

- 9 a What is multivibrator? How multivibrators are classified. 7M  
b With help of diagram explain the operation of Mono stable Multivibrator. 5M

**OR**

- 10 a Draw a high pass RC circuit and its frequency response. 7M  
b How Low pass RC circuit be used as a Integrator. 5M

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