Code No: 154AW **R18**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**B. Tech II Year II Semester Examinations, July/August - 2021**
**ELECTRONIC CIRCUIT ANALYSIS**
**(Common to ECE, EIE)**

**Time: 3 Hours** **Max. Marks: 75**

**Answer any five questions**
**All questions carry equal marks**

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1.a) Derive the expression for the bandwidth of multistage amplifier.
b) What is the use of transformer coupling in the output of multistage amplifier? Give its advantages and disadvantages. [8+7]

2.a) Show that bandwidth increases in negative feedback amplifiers.
b) An amplifier has an input resistance of 200 K ohms, with a certain negative feedback introduced in the above amplifier the input resistance is found to be 20 M ohms and overall gain is found to be 1000. Calculate the loop gain and feedback factor. [8+7]

3.a) Derive the expression for frequency of oscillation of Hartley oscillator.
b) Discuss about Frequency and amplitude stability of oscillators. [9+6]

4.a) Describe the operation of Class B Push pull amplifier and show how even harmonics are eliminated.
b) Derive the expression for conversion efficiency of class-B amplifier. [10+5]

5.a) Draw the neat diagram of monostable multivibrator using external connection and explain it in detail.
b) Determine the frequency of oscillation for the astable multivibrator using IC-555. Given that $R_A=R_B=1K\Omega$ and C=1000PF. [10+5]

6.a) Discuss in detail about the Validity of hybrid-$\pi$ model. Also give typical values of hybrid-$\pi$ conductance and capacitances.
b) Draw the four types of feedback amplifiers and explain them briefly. [7+8]

7.a) Establish the condition for frequency of oscillation in an RC phase shift oscillator.
b) Derive the expression for maximum conversion efficiency for a Transformer coupled Class A power amplifier. [10+5]

8.a) With the help of a neat circuit diagram, explain the working of a simple current sweep.
b) What are the techniques used to improve the Linearity of current sweeps? Explain. [8+7]

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