

GOVERNMENT WOMEN ENGINEERING COLLEGE AJMER

B.TECH IV SEM

MID TERM EXAMINATION

TIME: 60 MIN.

MAX. MARKS:

20

ANALOG ELECTRONICS

1. What are the four possible topologies of a feedback amplifier? Explain with neat sketches.
2. Derive an expression for output resistance in voltage series feedback amplifier.

OR

3. Draw the circuit of a bistable multivibrator using n-p-n transistors and explain its working.
4. An amplifier has a gain of 60dB (voltage gain). It has an output impedance of $Z_o = 10K$ ohms. It is required to modify its output impedance to 500 ohms by applying negative feedback. Calculate the value of feedback factor β . Also find the percentage change in overall gain for 10% change in the gain of internal amplifier. Here, A_f = gain with feedback and A = gain of basic amplifier without feedback.

OR

5. Sketch the topology for a generalized resonant circuit oscillator using impedances Z_1, Z_2, Z_3 . At what frequency will the circuit oscillate.
6. Explain Nyquist criterion for stability of amplifiers.

OR

7. An RC coupled amplifier has a voltage gain of 100, $f_L = 40$ Hz, $f_H = 200$ KHz and a distortion of 05% without feedback. Find the amplifier voltage gain, f_{LF}, f_{HF} and Distortion with feedback when $\beta = 0.01$.

