Code No: NR220101 | **NR** | **Set No. 2**

II B.Tech II Semester Examinations,December 2010
APPLIED ELECTRONICS
Civil Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. Discuss different types of strain gage configurations in detail. [16]

2. (a) Give the reason for employing negative voltage feedback in high gain amplifiers.

   (b) With a negative voltage feedback, an amplifier gives an output of 10V with an input of 0.5V. When feedback is removed, it requires 0.25V input for the same output. Calculate
      i. gain without feedback
      ii. Feedback factor B_V. [6+10]

3. Draw the block diagram of pH meter and explain its usefulness in measuring electrical quantities. [16]

4. (a) Write short notes on:
      i. Frequency response of an amplifier, and
      ii. Gain bandwidth product.

   (b) Draw the circuit of a common collector amplifier using NPN transistor and derive the expression for A_I, R_i, A_V & R_o. [6+10]

5. (a) Draw the structure of an n-channel JFET & explain it's principle of operation.

   (b) Draw the static characteristic curves of an N-channel JFET & explain the different portions of the characteristics. Define the pinch-off voltage & indicate it's location on drain characteristics. [8+8]

6. (a) Obtain 2 -input EX-OR gate using minimum number of NAND gates.

   (b) Obtain 2 - input EX-NOR gate using minimum number of NOR gates. [8+8]

7. (a) Explain the working of Zener diode under reverse bias and explain how it works as a voltage regulator.

   (b) Explain the concepts behind diffusion and transition capacitances of a PN junction diode with necessary details. [8+8]

8. (a) Explain the effects of probe compensation using waveforms.

   (b) Discuss the function of 10 to 1 probe. [8+8]

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Code No: NR220101   **NR**   **Set No. 4**

II B.Tech II Semester Examinations,December 2010
APPLIED ELECTRONICS
Civil Engineering

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Explain the working of Zener diode under reverse bias and explain how it works as a voltage regulator.

   (b) Explain the concepts behind diffusion and transition capacitances of a PN junction diode with necessary details. [8+8]

2. (a) Obtain 2 -input EX-OR gate using minimum number of NAND gates.

   (b) Obtain 2 - input EX-NOR gate using minimum number of NOR gates. [8+8]

3. Draw the block diagram of pH meter and explain its usefulness in measuring electrical quantities. [16]

4. Discuss different types of strain gage configurations in detail. [16]

5. (a) Draw the structure of an n-channel JFET & explain it's principle of operation.

   (b) Draw the static characteristic curves of an N-channel JFET & explain the different portions of the characteristics. Define the pinch-off voltage & indicate it's location on drain characteristics. [8+8]

6. (a) Explain the effects of probe compensation using waveforms.

   (b) Discuss the function of 10 to 1 probe. [8+8]

7. (a) Give the reason for employing negative voltage feedback in high gain amplifiers.

   (b) With a negative voltage feedback, an amplifier gives an output of 10V with an input of 0.5V. When feedback is removed, it requires 0.25V input for the same output. Calculate

       i. gain without feedback
       ii. Feedback factor B_V. [6+10]

8. (a) Write short notes on:

       i. Frequency response of an amplifier, and
       ii. Gain bandwidth product.

   (b) Draw the circuit of a common collector amplifier using NPN transistor and derive the expression for A_I, R_i, A_V & R_o. [6+10]

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Code No: NR220101 | **NR** | **Set No. 1**

II B.Tech II Semester Examinations,December 2010
APPLIED ELECTRONICS
Civil Engineering

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Give the reason for employing negative voltage feedback in high gain amplifiers.

   (b) With a negative voltage feedback, an amplifier gives an output of 10V with an input of 0.5V. When feedback is removed, it requires 0.25V input for the same output. Calculate

      i. gain without feedback
      ii. Feedback factor B_V.   [6+10]

2. (a) Write short notes on:

      i. Frequency response of an amplifier, and
      ii. Gain bandwidth product.

   (b) Draw the circuit of a common collector amplifier using NPN transistor and derive the expression for A_I, R_i, A_V & R_o.   [6+10]

3. (a) Explain the working of Zener diode under reverse bias and explain how it works as a voltage regulator.

   (b) Explain the concepts behind diffusion and transition capacitances of a PN junction diode with necessary details.   [8+8]

4. (a) Explain the effects of probe compensation using waveforms.

   (b) Discuss the function of 10 to 1 probe.   [8+8]

5. (a) Draw the structure of an n-channel JFET & explain it's principle of operation.

   (b) Draw the static characteristic curves of an N-channel JFET & explain the different portions of the characteristics. Define the pinch-off voltage & indicate it's location on drain characteristics.   [8+8]

6. Draw the block diagram of pH meter and explain its usefulness in measuring electrical quantities.   [16]

7. (a) Obtain 2 -input EX-OR gate using minimum number of NAND gates.

   (b) Obtain 2 - input EX-NOR gate using minimum number of NOR gates. [8+8]

8. Discuss different types of strain gage configurations in detail.   [16]

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Code No: NR220101 |NR| Set No. 3

II B.Tech II Semester Examinations,December 2010
APPLIED ELECTRONICS
Civil Engineering

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Explain the effects of probe compensation using waveforms.

   (b) Discuss the function of 10 to 1 probe.   [8+8]

2. (a) Give the reason for employing negative voltage feedback in high gain ampli-
       fiers.

   (b) With a negative voltage feedback, an amplifier gives an output of 10V with
       an input of 0.5V. When feedback is removed, it requires 0.25V input for the
       same output. Calculate

       i. gain without feedback
       ii. Feedback factor B_V.   [6+10]

3. (a) Write short notes on:

       i. Frequency response of an amplifier, and
       ii. Gain bandwidth product.

   (b) Draw the circuit of a common collector amplifier using NPN transistor and
       derive the expression for A_I, R_i, A_V & R_o.   [6+10]

4. (a) Explain the working of Zener diode under reverse bias and explain how it
       works as a voltage regulator.

   (b) Explain the concepts behind diffusion and transition capacitances of a PN
       junction diode with necessary details.   [8+8]

5. (a) Obtain 2 -input EX-OR gate using minimum number of NAND gates.

   (b) Obtain 2 - input EX-NOR gate using minimum number of NOR gates. [8+8]

6. Draw the block diagram of pH meter and explain its usefulness in measuring elec-
   trical quantities.   [16]

7. (a) Draw the structure of an n-channel JFET & explain it's principle of operation.

   (b) Draw the static characteristic curves of an N-channel JFET & explain the
       different portions of the characteristics. Define the pinch-off voltage & indicate
       it's location on drain characteristics.   [8+8]

8. Discuss different types of strain gage configurations in detail.   [16]

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