Code No: RR210302 | RR | SET-1

B.Tech II Year I Semester Examinations, May-June, 2012
BASIC ELECTRONICS
(MECHANICAL ENGINEERING)

Time: 3 hours **Max. Marks: 80**

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

1.a) Draw the circuit diagram of a full wave rectifier with L-section filter and explain how ripple can be reduced by using this filter circuit.
b) What is the purpose of bleeder resistor in filter circuits?
c) Draw the transistor biasing circuit using collector-to-base bias arrangement. Explain the concept of providing proper bias for the transistor to act as amplifying device. [6+4+6]

2.a) Draw the symbol, structure and VI characteristics of a silicon controlled rectifier and explain its operation.
b) Explain how the diode works as a switch. [10+6]

3.a) What are the different types of feedback amplifier? Give their equivalent circuits.
b) Discuss the conditions for sustained oscillations. Draw the Wein Bridge oscillator circuit using a non-inverting amplifier. Derive the condition for the frequency of oscillations. [4+12]

4.a) What are the types of resistance welding? Explain each of them.
b) Draw the circuit and explain the operation of Magnetic energy storage welder. [8+8]

5.a) Explain the theory of induction heating by taking an example of cylindrical metal piece. Draw the Graph showing the variation of eddy current density with distance from the metal surface.
b) Discuss different types of losses observed in dielectric heating. [10+6]

6.a) Explain the working and construction of a CRT with neat sketch. Explain how a CRO can be used for phase measurement.
b) What is a time base? State the need for time base in CRO. [8+8]

7.a) Explain the block diagram of a microprocessor.
b) Explain about various addressing modes of microprocessor with suitable examples. [8+8]

8.a) Derive an expression for the output voltage of a R-2R ladder DAC.
b) Explain the operation of successive approximation A-to-D converter with the help of a diagram. [6+10]

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Code No: RR210302 | RR | SET-2

B.Tech II Year I Semester Examinations, May-June, 2012
BASIC ELECTRONICS
(MECHANICAL ENGINEERING)

Time: 3 hours **Max. Marks: 80**

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

1.a) What are the different types of feedback amplifier? Give their equivalent circuits.
b) Discuss the conditions for sustained oscillations. Draw the Wein Bridge oscillator circuit using a non-inverting amplifier. Derive the condition for the frequency of oscillations. [4+12]

2.a) What are the types of resistance welding? Explain each of them.
b) Draw the circuit and explain the operation of Magnetic energy storage welder. [8+8]

3.a) Explain the theory of induction heating by taking an example of cylindrical metal piece. Draw the Graph showing the variation of eddy current density with distance from the metal surface.
b) Discuss different types of losses observed in dielectric heating. [10+6]

4.a) Explain the working and construction of a CRT with neat sketch. Explain how a CRO can be used for phase measurement.
b) What is a time base? State the need for time base in CRO. [8+8]

5.a) Explain the block diagram of a microprocessor.
b) Explain about various addressing modes of microprocessor with suitable examples. [8+8]

6.a) Derive an expression for the output voltage of a R-2R ladder DAC.
b) Explain the operation of successive approximation A-to-D converter with the help of a diagram. [6+10]

7.a) Draw the circuit diagram of a full wave rectifier with L-section filter and explain how ripple can be reduced by using this filter circuit.
b) What is the purpose of bleeder resistor in filter circuits?
c) Draw the transistor biasing circuit using collector-to-base bias arrangement. Explain the concept of providing proper bias for the transistor to act as amplifying device. [6+4+6]

8.a) Draw the symbol, structure and VI characteristics of a silicon controlled rectifier and explain its operation.
b) Explain how the diode works as a switch. [10+6]

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Code No: RR210302 | RR | SET-3

B.Tech II Year I Semester Examinations, May-June, 2012
BASIC ELECTRONICS
(MECHANICAL ENGINEERING)

Time: 3 hours **Max. Marks: 80**

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

1.a) Explain the theory of induction heating by taking an example of cylindrical metal piece. Draw the Graph showing the variation of eddy current density with distance from the metal surface.
b) Discuss different types of losses observed in dielectric heating. [10+6]

2.a) Explain the working and construction of a CRT with neat sketch. Explain how a CRO can be used for phase measurement.
b) What is a time base? State the need for time base in CRO. [8+8]

3.a) Explain the block diagram of a microprocessor.
b) Explain about various addressing modes of microprocessor with suitable examples. [8+8]

4.a) Derive an expression for the output voltage of a R-2R ladder DAC.
b) Explain the operation of successive approximation A-to-D converter with the help of a diagram. [6+10]

5.a) Draw the circuit diagram of a full wave rectifier with L-section filter and explain how ripple can be reduced by using this filter circuit.
b) What is the purpose of bleeder resistor in filter circuits?
c) Draw the transistor biasing circuit using collector-to-base bias arrangement. Explain the concept of providing proper bias for the transistor to act as amplifying device. [6+4+6]

6.a) Draw the symbol, structure and VI characteristics of a silicon controlled rectifier and explain its operation.
b) Explain how the diode works as a switch. [10+6]

7.a) What are the different types of feedback amplifier? Give their equivalent circuits.
b) Discuss the conditions for sustained oscillations. Draw the Wein Bridge oscillator circuit using a non-inverting amplifier. Derive the condition for the frequency of oscillations. [4+12]

8.a) What are the types of resistance welding? Explain each of them.
b) Draw the circuit and explain the operation of Magnetic energy storage welder. [8+8]

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Code No: RR210302 | RR | SET-4

B.Tech II Year I Semester Examinations, May-June, 2012
BASIC ELECTRONICS
(MECHANICAL ENGINEERING)

Time: 3 hours **Max. Marks: 80**

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

1.a) Explain the block diagram of a microprocessor.
b) Explain about various addressing modes of microprocessor with suitable examples. [8+8]

2.a) Derive an expression for the output voltage of a R-2R ladder DAC.
b) Explain the operation of successive approximation A-to-D converter with the help of a diagram. [6+10]

3.a) Draw the circuit diagram of a full wave rectifier with L-section filter and explain how ripple can be reduced by using this filter circuit.
b) What is the purpose of bleeder resistor in filter circuits?
c) Draw the transistor biasing circuit using collector-to-base bias arrangement. Explain the concept of providing proper bias for the transistor to act as amplifying device. [6+4+6]

4.a) Draw the symbol, structure and VI characteristics of a silicon controlled rectifier and explain its operation.
b) Explain how the diode works as a switch. [10+6]

5.a) What are the different types of feedback amplifier? Give their equivalent circuits.
b) Discuss the conditions for sustained oscillations. Draw the Wein Bridge oscillator circuit using a non-inverting amplifier. Derive the condition for the frequency of oscillations. [4+12]

6.a) What are the types of resistance welding? Explain each of them.
b) Draw the circuit and explain the operation of Magnetic energy storage welder. [8+8]

7.a) Explain the theory of induction heating by taking an example of cylindrical metal piece. Draw the Graph showing the variation of eddy current density with distance from the metal surface.
b) Discuss different types of losses observed in dielectric heating. [10+6]

8.a) Explain the working and construction of a CRT with neat sketch. Explain how a CRO can be used for phase measurement.
b) What is a time base? State the need for time base in CRO. [8+8]

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