I B.TECH – EXAMINATIONS, JUNE - 2011
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(BIOTECHNOLOGY)

Time: 3hours   Max.Marks:80
Answer any FIVE questions
All questions carry equal marks
- - -

1.a)   Write down the expression for the instantaneous power, and hence derive the equation for the average power.
  b)   A series R-L-C circuit consists of 100 ohms resistor and an inductor of 0.318 Henry and a capacitor of unknown value. This circuit is supplied by 230V, 50 HZ supply and draws a current of 2.3 ohms, and the current is in phase with the supply voltage. Find i) the value of the capacitance, and the power supplied by the source.   [8+8]

2.a)   Derive the equation for the voltage generated in a d.c generator.
  b)   A 2 pole d.c generator has 200 conductors on its armature. It is driven by a prime mover at a constant speed of 600 r.p.m. If the flux per pole is 0.1 wb, calculate the emf generated.   [8+8]

3.   With a neat sketch explain in detail moving coil attraction type instrument.   [16]

4.a)   Compare Half wave, Center tapped full wave and Bridge rectifiers.
  b)   Explain the following terms:
       i)   Ripple factor   ii)   Peak Inverse voltage
       iii)   Efficiency   iv)   TUF
       v)   Form factor   v)   Peak factor.   [6+10]

5.a)   Draw and explain UJT characteristics also give their applications.
  b)   Draw a family of drain characteristics and mutual characteristics of an n-channel FET and explain the shape of the curves qualitatively.   [8+8]

6.a)   Draw the circuit of a current shunt feedback amplifier and explain.
  b)   An amplifier has a gain of 10,000 without feedback. The gain is reduced to 50 with negative feedback. Find the feedback factor.
  c)   Explain the principle of operations of Tuned amplifiers.   [4+4+8]

7.a)   With the help of neat circuit diagram, explain the following applications of OP-AMP:
       i) Multiplier   ii) Differentiator   iii) Subtractor.
  b)   Design a scaling adder circuit using OP-AMP, to give the output voltage $V_O = -(3V_1 + 4V_2 + 5V_3)$, where V_1, V_2 and V_3 are the input voltages given to the circuit.   [10+6]

8.a)   With a circuit diagram, explain Counter type A-to-D converter.
  b)   Give the Boolean functions: $F = xy + x'y' + y'z$
       i)   Implement with only OR and NOT gates.
       ii)   Implement with only AND and NOT gates.   [8+8]

* * * * *

I B.TECH – EXAMINATIONS, JUNE - 2011
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(BIOTECHNOLOGY)

Time: 3hours   Max.Marks:80

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

1.   With a neat sketch explain in detail moving coil attraction type instrument.   [16]

2.a)   Compare Half wave, Center tapped full wave and Bridge rectifiers.
  b)   Explain the following terms:
        i)   Ripple factor   ii)   Peak Inverse voltage
        iii)   Efficiency   iv)   TUF
        v)   Form factor   v)   Peak factor.   [6+10]

3a)   Draw and explain UJT characteristics also give their applications.
  b)   Draw a family of drain characteristics and mutual characteristics of an n-channel
        FET and explain the shape of the curves qualitatively.   [8+8]

4.a)   Draw the circuit of a current shunt feedback amplifier and explain.
  b)   An amplifier has a gain of 10,000 without feedback. The gain is reduced to 50
        with negative feedback. Find the feedback factor.
  c)   Explain the principle of operations of Tuned amplifiers.   [4+4+8]

5.a)   With the help of neat circuit diagram, explain the following applications of
        OP-AMP:
        i) Multiplier   ii) Differentiator   iii) Subtractor.
  b)   Design a scaling adder circuit using OP-AMP, to give the output voltage
        $V_O = -(3V_1 + 4V_2 + 5V_3)$, where V_1, V_2 and V_3 are the input voltages given to the
        circuit.   [10+6]

6.a)   With a circuit diagram, explain Counter type A-to-D converter.
  b)   Give the Boolean functions: $F = xy + x'y' + y'z$
        i)   Implement with only OR and NOT gates.
        ii)   Implement with only AND and NOT gates.   [8+8]

7.a)   Write down the expression for the instantaneous power, and hence derive the
        equation for the average power.
  b)   A series R-L-C circuit consists of 100 ohms resistor and an inductor of 0.318
        Henry and a capacitor of unknown value. This circuit is supplied by 230V, 50 HZ
        supply and draws a current of 2.3 ohms, and the current is in phase with the
        supply voltage. Find i) the value of the capacitance, and the power supplied by the
        source.   [8+8]

8.a)   Derive the equation for the voltage generated in a d.c generator.
  b)   A 2 pole d.c generator has 200 conductors on its armature. It is driven by a prime
        mover at a constant speed of 600 r.p.m. If the flux per pole is 0.1 wb, calculate
        the emf generated.   [8+8]

* * * * *

I B.TECH – EXAMINATIONS, JUNE - 2011
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(BIOTECHNOLOGY)

Time: 3hours   Max.Marks:80

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

1.a)   Draw and explain UJT characteristics also give their applications.
  b)   Draw a family of drain characteristics and mutual characteristics of an n-channel
       FET and explain the shape of the curves qualitatively.   [8+8]

2.a)   Draw the circuit of a current shunt feedback amplifier and explain.
  b)   An amplifier has a gain of 10,000 without feedback. The gain is reduced to 50
       with negative feedback. Find the feedback factor.
  c)   Explain the principle of operations of Tuned amplifiers.   [4+4+8]

3.a)   With the help of neat circuit diagram, explain the following applications of
       OP-AMP:
       i) Multiplier   ii) Differentiator   iii) Subtractor.
  b)   Design a scaling adder circuit using OP-AMP, to give the output voltage
       $V_O = -(3V_1 + 4V_2 + 5V_3)$, where V_1, V_2 and V_3 are the input voltages given to the
       circuit.   [10+6]

4.a)   With a circuit diagram, explain Counter type A-to-D converter.
  b)   Give the Boolean functions: $F = xy + x'y' + y'z$

       i)   Implement with only OR and NOT gates.
       ii)   Implement with only AND and NOT gates.   [8+8]

5.a)   Write down the expression for the instantaneous power, and hence derive the
       equation for the average power.
  b)   A series R-L-C circuit consists of 100 ohms resistor and an inductor of 0.318
       Henry and a capacitor of unknown value. This circuit is supplied by 230V, 50 HZ
       supply and draws a current of 2.3 ohms, and the current is in phase with the
       supply voltage. Find i) the value of the capacitance, and the power supplied by the
       source.   [8+8]

6.a)   Derive the equation for the voltage generated in a d.c generator.
  b)   A 2 pole d.c generator has 200 conductors on its armature. It is driven by a prime
       mover at a constant speed of 600 r.p.m. If the flux per pole is 0.1 wb, calculate
       the emf generated.   [8+8]

7.   With a neat sketch explain in detail moving coil attraction type instrument.   [16]

8.a)   Compare Half wave, Center tapped full wave and Bridge rectifiers.
  b)   Explain the following terms:
       i)   Ripple factor   ii)   Peak Inverse voltage
       iii)   Efficiency   iv)   TUF
       v)   Form factor   v)   Peak factor.   [6+10

* * * * *

I B.TECH – EXAMINATIONS, JUNE - 2011
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(BIOTECHNOLOGY)

Time: 3hours   Max.Marks:80

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

1.a) With the help of neat circuit diagram, explain the following applications of OP-AMP:
      i) Multiplier   ii) Differentiator   iii) Subtractor.
  b) Design a scaling adder circuit using OP-AMP, to give the output voltage $V_O = -(3V_1 + 4V_2 + 5V_3)$, where V_1, V_2 and V_3 are the input voltages given to the circuit.   [10+6]

2.a) With a circuit diagram, explain Counter type A-to-D converter.
  b) Give the Boolean functions: $F = xy + x'y' + y'z$
      i)   Implement with only OR and NOT gates.
      ii)   Implement with only AND and NOT gates.   [8+8]

3.a) Write down the expression for the instantaneous power, and hence derive the equation for the average power.
  b) A series R-L-C circuit consists of 100 ohms resistor and an inductor of 0.318 Henry and a capacitor of unknown value. This circuit is supplied by 230V, 50 HZ supply and draws a current of 2.3 ohms, and the current is in phase with the supply voltage. Find i) the value of the capacitance, and the power supplied by the source.   [8+8]

4.a) Derive the equation for the voltage generated in a d.c generator.
  b) A 2 pole d.c generator has 200 conductors on its armature. It is driven by a prime mover at a constant speed of 600 r.p.m. If the flux per pole is 0.1 wb, calculate the emf generated.   [8+8]

5.   With a neat sketch explain in detail moving coil attraction type instrument.   [16]

6.a) Compare Half wave, Center tapped full wave and Bridge rectifiers.
  b) Explain the following terms:
      i)   Ripple factor   ii)   Peak Inverse voltage
      iii)   Efficiency   iv)   TUF
      v)   Form factor   v)   Peak factor.   [6+10]

7.a) Draw and explain UJT characteristics also give their applications.
  b) Draw a family of drain characteristics and mutual characteristics of an n-channel FET and explain the shape of the curves qualitatively.   [8+8]

8.a) Draw the circuit of a current shunt feedback amplifier and explain.
  b) An amplifier has a gain of 10,000 without feedback. The gain is reduced to 50 with negative feedback. Find the feedback factor.
  c) Explain the principle of operations of Tuned amplifiers.   [4+4+8]

* * * * *