Code No: RR210204   RR   SET-1

B.Tech II Year - I Semester Examinations, May-June, 2012
ELECTROMAGNETIC FIELDS
(ELECTRICAL AND ELECTRONICS ENGINEERING)
Time: 3 hours   Max. Marks: 80
Answer any five questions
All questions carry equal marks
- - -

1.a) State and explain Coulomb's Law in vector form.
  b) Define electric field intensity.
  c) Differentiate between potential and potential difference.   [8+3+5]

2.a) Explain Gauss's Law.
  b) Derive an expression for torque experienced by a dipole in uniform electric field.
                                                                       [8+8]
3.a) Explain the concept of polarization.
  b) Derive the expressions for conditions at a boundary between two dielectrics.
                                                                       [6+10]

4.a) Explain Ohm's Law in point form.
  b) Derive equation of continuity.
  c) What do you mean by conduction and connection current densities?   [5+7+4]

5.   Derive the expression for magnetic field intensity on the axis of a circular loop of
      radius 'R', carrying a current of I amps.   [16]

6.a) Derive Lorentz force equation.
  b) Show that the force between two straight long conductors carrying current in the
      same direction is attractive.   [8+8]

7.a) Define self and mutual inductance.
  b) Obtain the expression for mutual inductance between a straight long wire and a
      square loop wire in the same plane.   [6+10]

8.a) State and explain Faraday's laws of electromagnetic induction.
  b) What is an electric dipole? Define dipole moment.   [10+6]

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RR

SET-2

B.Tech II Year - I Semester Examinations, May-June, 2012
ELECTROMAGNETIC FIELDS
(ELECTRICAL AND ELECTRONICS ENGINEERING)
Time: 3 hours   Max. Marks: 80
Answer any five questions
All questions carry equal marks
- - -

1.a)   Explain the concept of polarization.
  b)   Derive the expressions for conditions at a boundary between two dielectrics.
                                                                    [6+10]

2.a)   Explain Ohm's Law in point form.
  b)   Derive equation of continuity.
  c)   What do you mean by conduction and connection current densities?   [5+7+4]

3.   Derive the expression for magnetic field intensity on the axis of a circular loop of radius 'R', carrying a current of I amps.   [16]

4.a)   Derive Lorentz force equation.
  b)   Show that the force between two straight long conductors carrying current in the same direction is attractive.   [8+8]

5.a)   Define self and mutual inductance.
  b)   Obtain the expression for mutual inductance between a straight long wire and a square loop wire in the same plane.   [6+10]

6.a)   State and explain Faraday's laws of electromagnetic induction.
  b)   What is an electric dipole? Define dipole moment.   [10+6]

7.a)   State and explain Coulomb's Law in vector form.
  b)   Define electric field intensity.
  c)   Differentiate between potential and potential difference.   [8+3+5]

8.a)   Explain Gauss's Law.
  b)   Derive an expression for torque experienced by a dipole in uniform electric field.
                                                                    [8+8]

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B.Tech II Year - I Semester Examinations, May-June, 2012
ELECTROMAGNETIC FIELDS
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3 hours   Max. Marks: 80

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

1.   Derive the expression for magnetic field intensity on the axis of a circular loop of radius 'R', carrying a current of I amps.   [16]

2.a)   Derive Lorentz force equation.
   b)   Show that the force between two straight long conductors carrying current in the same direction is attractive.   [8+8]

3.a)   Define self and mutual inductance.
   b)   Obtain the expression for mutual inductance between a straight long wire and a square loop wire in the same plane.   [6+10]

4.a)   State and explain Faraday's laws of electromagnetic induction.
   b)   What is an electric dipole? Define dipole moment.   [10+6]

5.a)   State and explain Coulomb's Law in vector form.
   b)   Define electric field intensity.
   c)   Differentiate between potential and potential difference.   [8+3+5]

6.a)   Explain Gauss's Law.
   b)   Derive an expression for torque experienced by a dipole in uniform electric field.
                                                                                                              [8+8]

7.a)   Explain the concept of polarization.
   b)   Derive the expressions for conditions at a boundary between two dielectrics.
                                                                                                              [6+10]

8.a)   Explain Ohm's Law in point form.
   b)   Derive equation of continuity.
   c)   What do you mean by conduction and connection current densities?   [5+7+4]

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Code No: RR210204 | RR | SET-4

B.Tech II Year - I Semester Examinations, May-June, 2012
ELECTROMAGNETIC FIELDS
(ELECTRICAL AND ELECTRONICS ENGINEERING)
Time: 3 hours   Max. Marks: 80
Answer any five questions
All questions carry equal marks
- - -

1.a) Define self and mutual inductance.
  b) Obtain the expression for mutual inductance between a straight long wire and a square loop wire in the same plane.   [6+10]

2.a) State and explain Faraday's laws of electromagnetic induction.
  b) What is an electric dipole? Define dipole moment.   [10+6]

3.a) State and explain Coulomb's Law in vector form.
  b) Define electric field intensity.
  c) Differentiate between potential and potential difference.   [8+3+5]

4.a) Explain Gauss's Law.
  b) Derive an expression for torque experienced by a dipole in uniform electric field.
                                                                              [8+8]
5.a) Explain the concept of polarization.
  b) Derive the expressions for conditions at a boundary between two dielectrics.
                                                                              [6+10]

6.a) Explain Ohm's Law in point form.
  b) Derive equation of continuity.
  c) What do you mean by conduction and connection current densities?   [5+7+4]

7.   Derive the expression for magnetic field intensity on the axis of a circular loop of radius 'R', carrying a current of I amps.   [16]

8.a) Derive Lorentz force equation.
  b) Show that the force between two straight long conductors carrying current in the same direction is attractive.   [8+8]

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