

**Physics 132**

**2nd Hour Exam 2nd Semester 2017/2018**

**Time: 85:00 min Date: 13 /5/2018**

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| **Student Name:------------------------------------------ Student NO----------------------** |

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| 🗸 | Sec | Instructor Name | Classes Time | 🗸 | Sec | Instructor Name | Classes Time |
| 🌕 | 1 | Areej Abdel Rahman | S 9:00-9:50 | 🌕 | 8 | Hazem Abu Sara | W 12:00-12:50 |
| 🌕 | 2 | Hazem Abu Sara | M 12:00-12:50 | 🌕 | 9 | Wael Karain | W 9:00-9:50 |
| 🌕 | 3 | Areej Abdel Rahman | M 14:00-14:50 | 🌕 | 10 | Abdallah Sayyed | W 14:00-14:50 |
| 🌕 | 4 | Abdallah Sayyed | S 14:00-14:50 | 🌕 | 11 | Abdallah Sayyed | W 11:00-11:50 |
| 🌕 | 5 | Dua’ Abu Mura | S 14:00-14:50 | 🌕 | 12 | Areej Abdel Rahman | W 12:00-12:50 |
| 🌕 | 6 | Ghassan Abbas | W 13:00-13:50 | 🌕 |  |  |  |
| 🌕 | 7 | Areej Abdel Rahman | M 15:00-15:50 |  |  |  |  |

**Answer Sheet:**

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| --- | --- | --- | --- | --- | --- |
| **Q#** | **a** | **b** | **c** | **d** | **e** |
| **1** |  |  |  |  |  |
| **2** |  |  |  |  |  |
| **3** |  |  |  |  |  |
| **4** |  |  |  |  |  |
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| **10** |  |  |  |  |  |
| **11** |  |  |  |  |  |
| **12** |  |  |  |  |  |
| **13** |  |  |  |  |  |
| **14** |  |  |  |  |  |
| **15** |  |  |  |  |  |
| **16** |  |  |  |  |  |

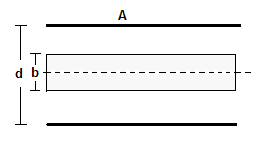
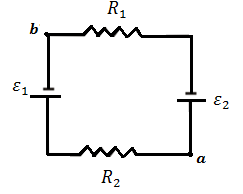
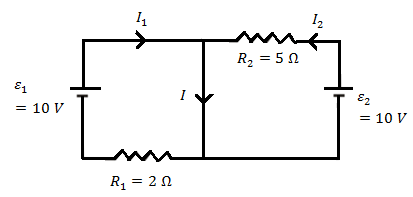
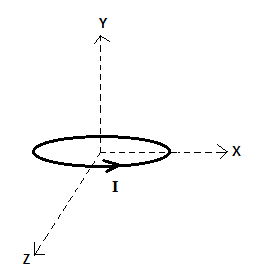
**Useful Formulae and Constants**

*Capacitance*

*Current and Resistance*

*Circuits*

*Magnetic Fields*

1. A potential difference of is applied to a series connection of two capacitors of capacitance and . What is the charge on ?
   1. \*
2. Two capacitors, is charged so its charge is and is uncharged . The two capacitors are then connected in parallel. Find the charge on ?
3. \*
4. A certain capacitor has a capacitance of . After it is charged to a charge and isolated, the two plates are pull apart so its capacitance becomes . Find the work done by the agent?
   1. \*
5. A slab of copper of thickness is thrust into a parallel plate capacitor of plate area and plate separation as shown in the figure. What is the capacitance after the slab is introduced?
   1. \*
6. A isolated conducting sphere whose radius is and has a charge . How much potential energy is stored in the electric field of this charged conductor?
   1. \*
7. A certain wire has a resistance . What is the resistance of a second wire, made of the same material, that is half as long and has half the radius?
   1. \*
8. What is the current in a wire of radius if the magnitude of the current density is variable and given by , in which is constant and is the radial distance?
   1. \*
9. What is the value of ?
   1. \*
10. In the circuit shown, the ideal batteries have , and , . If the potential at is , what is the potential at ?
    1. 
    3. \*
11. In the circuit shown find ?
    1. \*
12. A capacitor with initial charge is discharged through a resistor. What is the time taken by the capacitor to lose one-third of its charge?
    1. \*
13. In an RC series circuit, , resistance , and capacitance , the circuit is closed at to begin charging. Find the voltage across the capacitor at ?
    1. \*
14. At one instant, is the velocity of a proton in a uniform magnetic field . At that instant find the force on the proton?
    1. \*
15. An electron moves with speed into a region of uniform magnetic field . The angle between them is . Describe the motion of the electron and find the periodic time?
    1. Uniform circular motion,
    2. Nonuniform circular motion,
    3. Helical motion, \*
    4. Helical motion,
    5. Helical motion,
16. The coil in the figure, which is parallel to the plane, carries current in the direction indicated, has turns and area of , and lies in a uniform magnetic field . What is the potential energy of the coil in the magnetic field?
    1. \*
17. A magnetic field CANNOT:
    1. Exert a force on a charge
    2. Accelerate a charge
    3. Change the momentum of a charge
    4. Change the kinetic energy of a charge\*
    5. exist