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| **Assessment task # and title** |  |

UEENEEG101A – Solve problems in electromagnetic devices and related circuits

Revision Calculations Part A

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| 1. | **Calculate the force exerted between the two cables in parallel with each other at a distance of 0.9M each with a current of 210A flowing in each.**  **Both currents were in the same direction, draw the magnetic fields around them a state if the resulting magnetic force between them be attraction or repulsion?** | T2.2/3/4/5 |
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| 2. | **An electromagnet has dimensions of 60 mm X 75 mm. If the flux produced in the magnetic circuit is 30 Wb, calculate the flux density in the magnetic core.** | T3.10 |
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| 3. | **Calculate the magnetising force created when a coil of 700 turns has 2.2A of current passing through it?** | T3.11 |
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| 4. | **A coil of 950 turns has a flux of 28 µWb passing through it. If the flux is reduced to 12 µWb in 7 ms, find the average induced voltage.** | T4.3 |
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| 5. | **Determine the force exerted on a conductor 350 mm long when it is carrying a current of 34 amps in a magnetic field with a flux density of 2.2 teslas.** | T3.10 |
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| 6. | **Determine the voltage generated in a 3.5 H inductor, when the current is reduced uniformly from 7.2 A to 2.8 A in 0.35 seconds.** | T4.4  T5.7 |
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| 7. | **Calculate the time constant in an RL circuit consisting of an inductance of**  **3.5 henrys and a resistance of 55 ohms.** | T5.12 |
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| 8. | **Calculate the total time required for current to reach maximum value in**  **an RL circuit consisting of an inductance of 5.3 henrys and a resistance of 85 ohms.** | T5.13 |
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| 9. | **Determine the value of resistance a shunt resistor must be for a 10 A meter with an internal resistance of 5.5** *Ω* **given that the current to be measured is 75 Amps.** | T6.3 |
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| 10. | **Calculate the force exerted between the two cables in parallel with each other at a distance of 0.95M each with a current of 380A flowing in each.**  **Both currents were in the same direction, draw the magnetic fields around them a state if the resulting magnetic force between them be attraction or repulsion?** | T2.2/3/4/5 |
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| 11. | **An electromagnet has dimensions of 75 mm X 155 mm. If the flux produced in the magnetic circuit is 40 Wb, calculate the flux density in the magnetic core.** | T3.10 |
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| 12. | **Calculate the magnetising force created when a coil of 850 turns has 5.2A of current passing through it?** | T3.11 |
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| 13. | **A coil of 950 turns has a flux of 56µ Wb passing through it. If the flux is reduced to 37 µ Wb in 4.9 ms, find the average induced voltage.** | T4.3 |
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| 14. | **Determine the force exerted on a conductor 450 mm long when it is carrying a current of 38 amps in a magnetic field with a flux density of 3.2 teslas.** | T3.10 |
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| 15. | **Determine the voltage generated in a 3.72 H inductor, when the current is reduced uniformly from 7.3A to 2.5 A in 0.35 seconds.** | T4.4  T5.7 |
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| 16. | **Calculate the time constant in an RL circuit consisting of an inductance of 2.4 henrys and a resistance of 53 ohms.** | T5.12 |
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| 17. | **Calculate the total time required for current to reach maximum value in**  **an RL circuit consisting of an inductance of 7.5 henrys and a resistance of 175ohms.** | T5.13 |
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| 18. | **Determine the value of resistance a shunt resistor must be for a 7A meter with an internal resistance of 2.2** *Ω* **given that the current to be measured is 45 Amps.** | T6.3 |
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