**EEE349 / EEE350 – Power Engineering Electromagnetics**

**Finite element analysis assignment answer sheet 2014/15**

|  |  |
| --- | --- |
| **Name:** | **Parameter set :** |

**Ensure that you include units for each calculation as appropriate.**

**You can fill in this WORD document or print it out and fill in by hand for scanning. Feel free to adjust the box sizes to suit.**

|  |  |  |
| --- | --- | --- |
| **1** | **Define / explain the origin of your coordinate system:** | |
| i) | Position of phase A conductors (x,y): |  |
| Position of phase B conductors (x,y): |  |
| Position of phase C conductors C (x,y): |  |
| Voltage on phase A for maximum electric field at reference point |  |
| Voltage on phase B for maximum electric field at reference point |  |
| Voltage on phase C for maximum electric field at reference point |  |
| Current in phase A for maximum magnetic field at reference point |  |
| Current in phase B for maximum magnetic field at reference point |  |
| Current in phase C for maximum magnetic field at reference point |  |
| Location of maximum electric field point (x,y) |  |
| Location of maximum electric field point (x,y) |  |
| Magnitude of maximum electric field |  |
| Magnitude of maximum magnetic field |  |
|  | **Assumption and rationale for selecting source conditions:** | |
|  | **Assumptions / approximations for pylon and line geometry:** | |
| ii) | Capacitance to ground of phase A |  |
| Capacitance to ground of phase B |  |
| Capacitance to ground of phase C |  |

|  |  |  |
| --- | --- | --- |
| **2** |  | |
| i) | Force variation - Paste an Excel graph (as a jpeg image) into this space – feel free to increase the space the suit. Take care to carefully label each axis | |
| ii) | Current density required to obtain a factor of 3 increase in force |  |
| Iii) | Inductance values | |
|  | **At lg=0** |  |
|  | **At lg =3mm** |  |