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| **Department of Electrical Engineering** **Final-Assignment****Date: 23/06/2020****Course Details** |
| **Course Title:** |  Antennas & Wave Propagation | **Module:** |  |
| **Instructor:** |  | **Total Marks:** | 50 |
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**Student Details**

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| **Name:** |  | **Student ID:** |  |

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| Q1. | (a) |  | Marks 5 |
| CLO 2 |
| (b) | Radiation resistance of an antenna is 90 ohms & loss resistance is 30 ohms. calculate antenna radiation efficiency? | Marks 5 |
| CLO 1 |
| Q2. | (a) | An antenna has a loss resistance of 40 ohms, power gain of 60, and directivity 13. Calculate the radiation resistance | Marks 4 |
| CLO 3 |
| (b) | Explain Scattering Parameter and VSWR? | Marks 6 |
| CLO 2 |
| Q3. | (a) | Briefly explain Ground wave propagation, sky wave propagation & space wave propagation? | Marks 4 |
| CLO 1 |
| (b) | What is Effective aperture, Reciprocity and FNBW? | Marks 6 |
| CLO 2 |
| Q4. |  | Explain the design and working principle of MPA (Micro strip patch Antenna) and discuss four feeding methods of MPA | Marks 15CLO 3 |
| Q5. |  |  | Marks 05CLO 2 |