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| **Department of Electrical Engineering**  **Assignment**  **Date: 20/04/2020**  **Course Details** | | | |
| **Course Title:** | Direct Energy Conversions | **Module:** |  |
| **Instructor:** |  | **Total Marks:** | 30 |
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**Student Details**

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

Note: Plagiarism of more than 20% will result in negative marking.

Similar answers of students will result in cancellation of the answer for all parties.

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| Q1. | (a) | In Renewable Energy Systems Solar Photo Voltaic and Fuels Cell are among the popular choice of technologies used for Direct Energy Conversion. For your home town of (State your city), which will be the better option to power a 10 KW load. Explain your answer based on its pros & cons, users, applications, availability and market. Back your reasons with valid data, facts and figures. | Marks 10 |
| Q2. | (a) | PV Cells performance is greatly affected by a location’s climate factors which include irradiance, temperature, humidity and wind. Different locations have different climate conditions. For your home town of (State your city and climate conditions), based on its average climate conditions what techniques will you apply to a PV cell to reduce the effects of climate on the cells performance, reduce losses and increase efficiency. Back your reasons with valid data, facts and figures. | Marks 10 |
| Q3. | (a) | Fuel Cells have many types based on temperature, electrolyte and fuel. What would be the best option and the worst option among the types of fuel cell for providing power to Iqra National University (Take the last 3 digits of your student ID to be the average load KW of INU) located in Peshawar. Explain your choices based on the pros & cons, applications, availability and market. Back your reasons with valid data, facts and figures. | Marks 10 |