



VIGYAAN PROBLEM STATEMENTS

(Department of Metallurgical and Materials Engineering)

1 .Renewable Energy Sources

Renewable energy is always the highest priority when it comes to the protection of environment. Efficiency of a solar charging system depends on weather conditions. If the weather is cloudy or rainy, then it affects the charging process. Perceive possible combinations of existing renewable energy sources for 24×7 affordable dependence.

2. Uses of Waste CO Gas

Combustion of fuels produce a lot of CO in them which can be utilized as an effective way as a secondary fuel and in the refining of secondary metals like zinc .Ascertain possible uses of calorific value of waste CO gas.

3. Electric Cars

Electric cars are a fascinating thing when it comes to non-utilization of conventional liquid fuels like petrol/diesel. But one of the major disadvantages of using them is that the torque needs to be controlled efficiently. Comment on the ways of its engine design to overcome the disadvantages.

4. Aero Dynamics

Exact copy of aero-plane wings design based on birds-flying mechanism. Comment on the possibility of using these shape-changing materials on application of electric- field in the field of aero-dynamics.

5. Alloying Wheels

Magnesium has only been the most recent development when it comes to alloying wheels. However there had been some potential work on the development of carbon-based nano-composites but its fabrication is still a problem. What can be the novel methods for the economic production of such alloying elements?

6. Concrete Compositions

Interaction between polymer fibers as a composite to form reinforced concrete is a great method for constructing permanent structures in earthquake prone regions. These special concrete composites can have appreciable toughness to withstand impact shock-waves at its foundation, instead of crumbling in a brittle manner. Comment on its composition and methods of production.