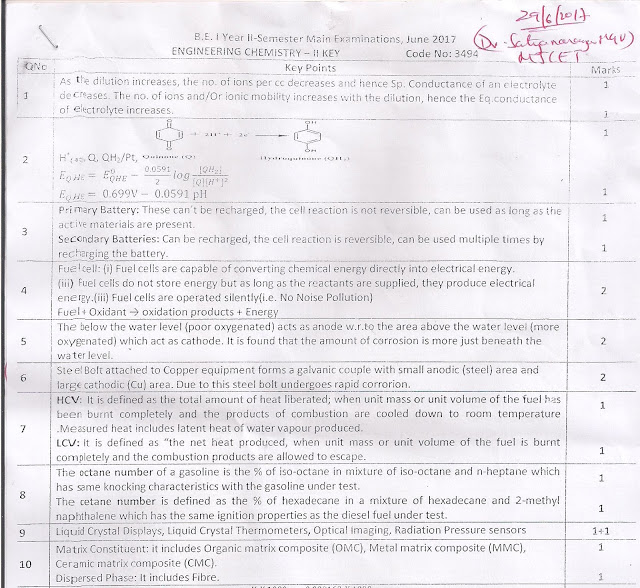
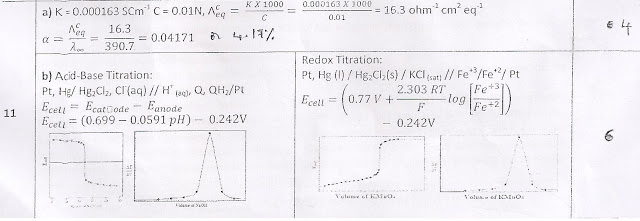
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**PART - B (5 x 10 = 50 Marks)**

11. a) Electrolytic conductance of a 0.01 N solution of acetic acid was found to be 0.000163 S.cm-1 at 298 K. Calculate the degree of dissociation of the acid. λ∞ of acetic acid = 390.7 S. cm２. greq-1.

     b) Explain various types of potentiometric titrations and draw the suitable graphs.

Ans.

[](https://4.bp.blogspot.com/-JbbY3i_YAEw/WWX6izXqaBI/AAAAAAAACqA/3_pjhFKlBSQEjMZCXBrPZTO__DK1KPcqwCLcBGAs/s1600/Q+11.jpg)

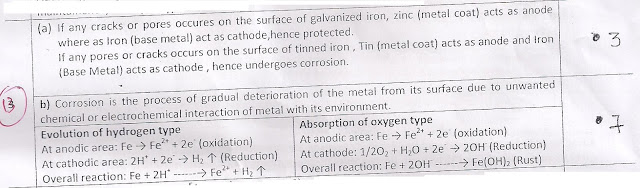
12. a) Explain lead-acid battery with suitable reactions,

      b) What are lithium ion batteries? Explain their advantages and applications.

A  
  
  
  
  
  
  
  
13. a) Galvanisation of iron articles is preferred to tinning. Give reason.

      b) What is corrosion of metals? Describe the mechanism of eelctro-chemical corrosion by                        Hydrogen evolution and Oxygen absorption.

Ans.

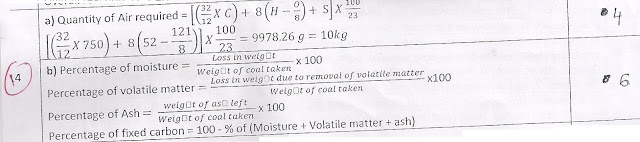
[](https://4.bp.blogspot.com/-VKw7nqzGrWY/WWX8C6Ax0pI/AAAAAAAACqM/lv5rKtZjrHQ9SVVVv4238svZ_kAkXWtpACLcBGAs/s1600/Q+13.jpg)

14. a) A sample of coal was found to have the following percentage composition.

          C = 75%, H = 5.2%, O = 12.1%, N = 3.2% and ash = 4.5%. Calculate the minimum air                         required for complete combustion of 1kg of coal,

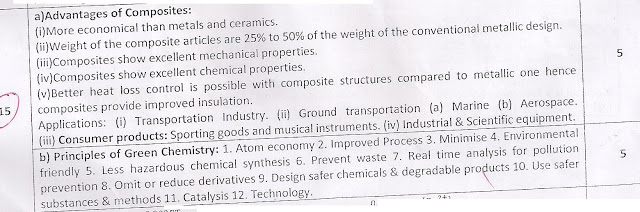
     b) Explain proximate analysis of coal and write its significance.

Ans.

[](https://3.bp.blogspot.com/-AOiQIL1Yjwg/WWX8uiliOuI/AAAAAAAACqQ/Fir0fbn6ntgTpp_Bp9uYVtI1knTVRfpngCLcBGAs/s1600/Q+14.jpg)

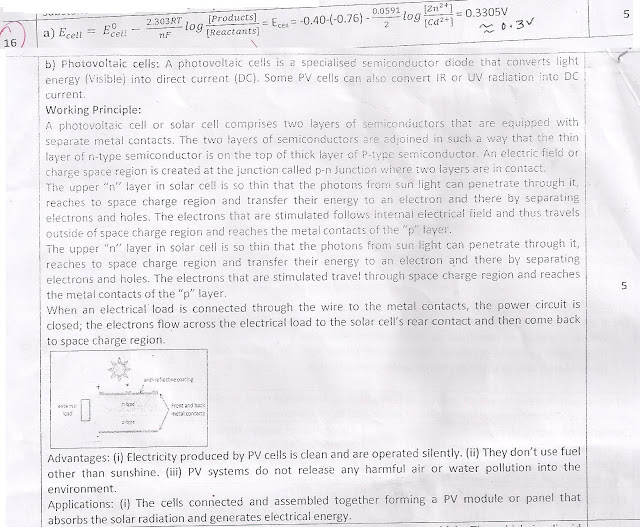
15. a) Discuss the advantages and applications of composites.

      b) Explain the principles of green chemistry.

Ans.[](https://4.bp.blogspot.com/-au2KGV-FQwY/WWX9X1PpPZI/AAAAAAAACqU/aBTdCH2e-N4LXlBLqoRj7PiUEaGU0GSNQCLcBGAs/s1600/Q+15.jpg)

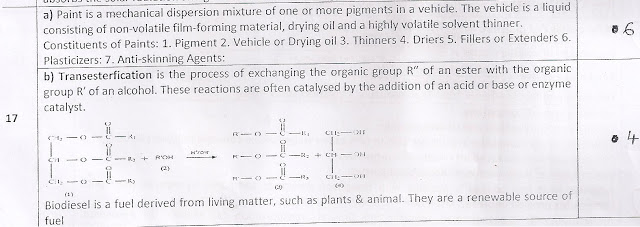
16. a) Calculate the e.m.f. of the following cell at 25'c .

           The standard reduction potential of Zn and Cd electrodes at 298 K are -0.76 V and -0.40 V                   respectively.

b) Write a note on Photovoltaic cells.Ans.[](https://4.bp.blogspot.com/-ijIPI6_la4U/WWX-xtoetFI/AAAAAAAACqg/O7AKPdBHt9c_Uh1aoavhDdKwYLB6G8P7QCLcBGAs/s1600/Q+16.jpg)

17. a) What is a paint? What are its constituents and explain their functions?

      b) Explain the different methods used in preparing the biodiesel and discuss its applications.

Ans. [](https://2.bp.blogspot.com/-ZJe8NywaPDU/WWX_Rs2VgNI/AAAAAAAACqk/LjsWhz5ugLcelIB_fwGyagE6UMtb4rLvQCLcBGAs/s1600/Q+17.jpg)