**KLS Gogte Institute of Technology (Autonomous)**

**Department of Chemistry**

Subject: Applied Chemistry Code:18CHE22

Internal Assessment Test - I

Semester: II Div: A,B,C,D,E,F and G Date: 14/02/2019

Max. Marks: 25 Duration: 1 Hr **Instructions**: **Answer any five questions. (5 x 5 = 25 marks)**

1. What are reference electrodes? Explain the construction and working of calomel electrode. [L2], [CLO1], [PO 1, 3,7]
2. Explain the construction and working of zinc-air cell with neat labeled diagram. [L2], [CLO1], [PO 1, 3,7]
3. Which of the following cell gives maximum voltage at 300 K?

Zn/ZnSO4(2M)//CuSO4(1M)/Cu with E0cell1.10 V

Zn/ZnSO4(2M)//AgNO3(1M)/Ag with E0cell 1.56 V [L3], [CLO1], [PO 1, 3,7]

1. What are solar cells? Explain the construction and working of a solar cell. [L2], [CLO1], [PO 1, 3,7]
2. Explain the electrochemical theory of corrosion taking iron as an example. [L2], [CLO2], [PO1, 2, 3]
3. Explain the two cathodic protection methods of corrosion control with neat labeled diagrams.

[L2], [CLO2], [PO1, 2, 3]

1. What is differential metal corrosion? Give an example. A thick steel sheet of area 100 cm2 exposed to air near the sea. After one year period it was found to experience weight loss of 90 g due to corrosion. The density of steel is 7.99 g cm-3. Calculate corrosion penetration rate in mm year-1.

[L3], [CLO2], [PO1, 2,3]

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**Quiz – I**

Semester : II Div : **A, B, C, D, E, F and G** Date : 14/02/2019

Max. Marks : 05 Duration: 15 Min

1. An example of ion selective electrode is,

a) Zn/Zn2+ b) Hg/Hg2Cl2/Cl- c) Pt/Fe3+, Fe2+ d) Glass electrode

1. Li-ion battery is a

a) Primary battery b) Secondary battery c) Reserve battery d) None of these

1. Electrolyte used in Polymer electrolyte membrane fuel cell is

a) Aq.H2SO4 b) Aq. KCl c) Nafion d) Aq.KOH

1. A group of solar panels arranged in series and in parallel are called

a) Solar cells b) Modules c) dry cells d) Arrays

1. Lithium metal is preferred as a battery anode material because of its

a) Light weight b) Low electrode potential c) Good conductivity d) All of these

1. Caustic embrittlement in steam boiler is due to

a) Na2CO3 b) NaHCO3 c) NaCl d) None of these

1. Ships sailing in ocean suffers from \_\_\_\_\_\_\_\_\_\_\_ type of corrosion

a) Differential metal b) Differential aeration c) Stress d) None

1. When ratio of anodic to cathodic area increases, the rate of corrosion \_\_\_\_\_\_\_\_

a) Decreases b) Increases c) will not affect d) None of these

1. Flux used in Galvanizing

a) BaCl2 b) NaCl c) Palm oil d) None of these

1. Nuts and bolts should be made of same material to prevent \_\_\_\_\_\_\_\_\_ corrosion

a) Differential metal b) Differential aeration c) Stress d) None

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