Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **CH315** | **Duration :** | **3hrs** |
| **Sub. Name :** | **MATERIALS ELECTRO CHEMISTRY** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Marks** |
| 1. | a. | Describe any five important chemical properties of spinel type oxides. | 10 |
| b. | Explain the synthesis of spinel type oxide materials by a chemical route. | 10 |
| (OR) | | | |
| 2. | a. | Illustrate the electrochemical parameters of spinel type oxide materials. | 10 |
| b. | Discuss the adsorption properties of spinel type oxide materials. | 10 |
|  |  |  |  |
| 3. | a. | Explain the important properties of transition metal oxides with rutile-type structure. | 10 |
| b. | Mention any five physicochemical characteristics of transition metal dioxides. | 10 |
| (OR) | | | |
| 4. | a. | Discuss in detail about the preparation of single crystals. | 10 |
| b. | Explain the methods used for preparing mixed oxide films. | 10 |
|  |  |  |  |
| 5. | a. | Illustrate the surface and intrinsic redox properties of transition metal dioxides. | 10 |
| b. | Give an account on the adsorption properties of transition metal dioxides. | 10 |
| (OR) | | | |
| 6. | a. | Explain the adsorption phenomena of gas / solid surfaces. | 10 |
| b. | Mention the methodology used to measure the surface porosity in oxides. | 10 |
|  |  |  |  |
| 7. | a. | Write a detailed explanation on the reactions occur between hydrogen and organic substances at anodic oxide films. | 10 |
| b. | Mention the importance of organic oxidations with Pt and PbO2 anodes. | 10 |
| (OR) | | | |
| 8. | a. | Explain the mechanism of surface oxidation of platinum. | 10 |
| b. | Illustrate the mechanism of hydrogen in organic medium. | 10 |
|  | |  |  |
|  | | **Compulsory**: |  |
| 9. | a. | Write a detailed note on the difunctional mechanism involving reactive surface oxide. | 10 |
| b. | Illustrate the mechanisms involved in the oxygen and chlorine evolution at conductive metallic oxide anodes. | 10 |