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

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**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **17CH3016** | **Duration :** | **3hrs** |
| **Sub. Name :** | **INSTRUMENTAL METHODS OF ANALYSIS** | **Max. marks :** | **100** |

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

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | List out various typetitrimetric analyse. Explain it. | CO2 | 15 |
| b. | A chemist like to estimate the amount of Fe2+ in FeSO4 by using potassium permanganate as a link solution and standard solution of oxalic acid. What type of titration will undergo for the above said reactant. Give reasons and reaction steps | CO3 | 5 |
| (OR) | | | | |
| 2. | a. | Discuss in detail about various type of errors with suitable examples. | CO3 | 15 |
| b. | The percentages of a Constituent A in a compound AB were found to be 88.32, 88.36, 88.23, 88.11 and 88.38 percent. Find relative mean deviation. | CO2 | 5 |
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| 3. | a. | Assess the principle and techniques involved in Column Chromatography. | CO2 | 10 |
|  | b. | Discuss gas chromatography with neat diagram. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Describe High Performance Liquid Chromatography with neat diagram. | CO2 | 10 |
|  | b. | In gas chromatographic separation of benzene, toluene, napthalene and xylene the areas under the peak were noted to be 31.0, 14.5, 27.5 and 53.2 cm. repesctively. Calculate the percentage composition of the sample. | CO3 | 8 |
|  | c. | Give any two applications of thinlayer chromatography. | CO2 | 2 |
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| 5. | a. | Explain the thermogravimetric analysis and its applications. | CO2 | 10 |
|  | b. | Discuss the Emission Spectroscopy with suitable diagrams. | CO2 | 10 |
| (OR) | | | | |
| 6. | a. | Enumerate the principle and applications of Differential Thermal Analysis. | CO2 | 10 |
|  | b. | Discuss the differentials scanning calorimetry with suitable examples. | CO2 | 10 |
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| 7. | a. | Give a detailed account on XRD. | CO2 | 10 |
|  | b. | Give an account on atomic absorption spectroscopy. | CO2 | 10 |
| (OR) | | | | |
| 8. | a. | What do you understand from Scanning Electron Microscope? Give its applications. | CO2 | 10 |
|  | b. | Discuss in detail about Transmission Electron Microscopy. | CO2 | 10 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Explain water analysis with suitable examples. | CO2 | 10 |
|  | b. | Describe Food analysis with suitable examples. | CO2 | 10 |