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**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

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

**End Semester Examination – Nov/Dec - 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **12CH210** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **CHARACTERIZATION AND INSTRUMENTAL TECHNIQUES** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | |
| 1. | Write the principle of STM. | (1) |
| 2. | Expand JCPDS. | (1) |
| 3. | What do you mean by Neutron Diffraction? | (1) |
| 4. | Expand RHEED. | (1) |
| 5. | Define Vibrational Spectroscopy. | (1) |
| 6. | Write any two factors influencing Vibrational Frequencies. | (1) |
| 7. | What is the effect of conjugation in UV visible spectroscopy? | (1) |
| 8. | Write down the range of UV and VISIBLE spectra. | (1) |
| 9. | Expand ESCA. | (1) |
| 10. | What is Nanotribiology? | (1) |

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| **PART B(5 X 3= 15 MARKS)** | | |
| 11 | Write short notes on SEM. | (3) |
| 12 | What are the applications of LEED? | (3) |
| 13 | Discuss the Finger Print Region in Vibrational Spectroscopy. | (3) |
| 14 | Write notes on Woodward-Fieser rules. | (3) |
| 15 | Explain the ultraviolet photoelectron spectroscopy. | (3) |

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| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. |  | Discuss in detail about the XRD. | (15) |
| (OR) | | | |
| 17. |  | Explain the Principle and Instrumentation of Transmission Electron Microscopy. | (15) |
| 18. |  | Explain the EELS with its applications. | (15) |
| (OR) | | | |
| 19. |  | Discuss in detail about the Dynamic Light Scattering. | (15) |
| 20. |  | Illustrate the Vibrations of a Diatomic molecule. | (15) |
| (OR) | | | |
| 21. |  | Discuss the Vibrating Polyatomic molecule. | (15) |
| 22. | a. | Write notes on Chromophores and Auxochromes. | (10) |
| b. | What are the applications of UV visible spectroscopy to organic and inorganic Compounds? | (5) |
| (OR) | | | |
| 23. |  | Discuss the principle, instrumentation and application of UV spectroscopy. | (15) |
| 24. |  | Discuss nanotribometer in detail. | (15) |
| (OR) | | | |
| 25. |  | Explain the X-ray photoelectron spectroscopy in detail. | (15) |

ALL THE BEST