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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

**End Semester Examination – April/May– 2017**

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| **Code :** | **15PH3018** | **Duration :** | **3hrs** |
| **Sub. Name :** | **THIN FILM TECHNOLOGY** | **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. | Demonstrate the working of Diffusion pump with suitable schematic. | CO1 | 10 |
| b. | List out the advantages and disadvantages of Diffusion pump. | CO1 | 5 |
| c. | Classify different Boats available in Physical vapour deposition. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | Define the working principle of Pirani gauge. | CO1 | 5 |
| b. | Demonstrate the working of pirani gauge with a neat diagram. | CO1 | 10 |
| c. | Appraise importance of substrate cleaning. | CO1 | 5 |
| 3. | a. | Describe Chemical vapour deposition method for depositing a Composites thin layers. | CO1 | 15 |
|  | b. | Explain the REED mechanism in MBE method. | CO1 | 5 |
| (OR) | | | | |
| 4. | a. | Discuss RF Magnettron sputtering system to deposit metal films. | CO1 | 10 |
|  | b. | Apply spray pyrolysis method to prepare a metal oxide thin films with a neat sketch. | CO1 | 10 |
| 5. | a. | Illustrate the Surface Energy and Surface diffusion Processes in thin film deposition. | CO2 | 15 |
|  | b. | Substrate influence the growth of thin films. Justify. | CO2 | 5 |
| (OR) | | | | |
| 6. | a. | Discuss the formation of nucleation and growth in thin flim. | CO2 | 10 |
|  | b. | Define surface energy and it influence in surface diffusion. | CO2 | 10 |
| 7. |  | Demonstrate the X-ray diffraction technique with Brag’s law and interpret XRD graph with the help of JCPDS standards. | CO2 | 20 |
| (OR) | | | | |
| 8. |  | Explain how UV Vis spectrograph could identify the Absorption edge, Band Gap and Multi ple band gap for nano particle presence. | CO2 | 20 |
|  | | **Compulsory:** |  |  |
| 9. |  | Discuss the Microelectromechanical systems and its uses in Reducing the size of an electronic gadges. | CO2 | 20 |

ALL THE BEST