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

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

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| **Code : 14ME4001** |  | **Duration :** | **3hrs** |
| **Sub. Name : FRICTION STIR WELDING AND PROCESSING**  **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. | What is solid state welding? Explain friction stir welding with neat sketches. | CO1 | 10 |
| b. | List the various applications of friction stir welding. | CO1 | 10 |
| (OR) | | | | |
| 2. |  | Recognise the taxonomy of friction stir welding with neat sketches. | CO1 | 20 |
|  |  |  |  |  |
| 3. | a. | Elaborate on the various criteria involved in tool design for friction stir welding process. | CO1 | 10 |
| b. | Identify the forces around the pin and shoulder with neat sketches. | CO1 | 10 |
| (OR) | | | | |
| 4. |  | Examine the flow of energy into the workpiece during FSW based on energy source and its flow and nature of heat generation and its utilization. | CO1 | 20 |
|  |  |  |  |  |
| 5. | a. | Discuss recovery recrystallisation and grain growth with neat sketches. | CO1 | 12 |
| b. | Compare static and dynamic recrystallisation. | CO1 | 8 |
| (OR) | | | | |
| 6. | a. | List the various joint configurations possible in Friction stir welding. | CO1 | 8 |
| b. | State the various defects which occur in friction stir processing with reasons. | CO1 | 12 |
|  |  |  |  |  |
| 7. |  | Analyse the corrosion properties of friction stir welded joints with relevant illustrations. | CO1 | 20 |
| (OR) | | | | |
| 8. | a. | With a neat sketch describe the friction stir processing setup . | CO1 | 14 |
| b. | Interpret the relationship between tool profile and the quality of weld produced with respect to material flow. | CO1 | 6 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. |  | Appraise friction stir processing as a technology enabler for new concepts. | CO1 | 20 |