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

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

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| **Code :** | **18ME3010** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ADVANCED MANUFACTURING PROCESSES** | **Max. marks :** | **100** |

**ANSWER ANY FIVE QUESTIONS (5 x 16 = 80 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | With a flow chart classify the basic manufacturing processes in engineering industries. Give examples for each classification. | CO1 | 3 |
| b. | Enumerate the characteristics of a riser. Mention the factors that are to be considered while designing a riser. Explain with suitable sketches. | CO1 | 8 |
| c. | List the casting defects, their causes and remedies. | CO1 | 5 |
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| 2. | a. | List the modern casting processes, its applications, advantages and disadvantages. | CO1 | 6 |
| b. | Explain the construction, working principle, application, merits and demerits of Injection moulding process along with a neat sketch. | CO1 | 10 |
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| 3. | a. | Differentiate cold working and hot working based on metallurgical effects during the process. | CO2 | 6 |
| b. | Explain spinning process with a neat sketch. Differentiate Shear spinning and flow forming. | CO2 | 10 |
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| 4. | a. | Explain the multistage rolling process with a neat sketch. List products that are manufactured using multistage rolling. | CO3 | 8 |
| b. | Differentiate drawing and extrusion processes. Explain both the processes with neat sketch. List the application of each process. | CO3 | 8 |
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| 5. | a. | Name any three energy sources used to obtain a high energy rate during forming process. | CO3 | 3 |
| b. | List the various high energy rate forming processes and explain the electromagnetic forming technique with a neat sketch. Enumerate the advantages, limitations, process parameters and applications of the process. | CO3 | 13 |
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| 6. | a. | Explain the material design consideration for sheet metal forming process. Graphically explain the formability of sheet metal. | CO4 | 8 |
| b. | Describe the super plastic forming with a neat sketch. List the advantages and disadvantages of the process. | CO4 | 8 |
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| 7. | a. | Explain the abrasive jet machining with a neat sketch. List the advantages, limitations and applications. | CO5 | 8 |
| b. | Explain the electro chemical machining dressing with a neat sketch. List the advantages, limitations and applications. | CO5 | 8 |
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|  | | **COMPULSORY QUESTION (1 x 20 = 20 Marks)** |  |  |
| 8. | a. | Estimate how tool design can influence better weldment quality during friction stir welding (FSW). | CO6 | 5 |
| b. | Draw a FSW tool nomenclature and enumerate the rules followed during a FSW tool design. | CO6 | 8 |
| c. | Draw a FSW weld nugget macrostrucutre and explain the various zones in the weld nugget. | CO6 | 7 |