RULLINU.						

Total No. of Pages : 01

Total No. of Questions : 08

PHD (Mech. Engg.) PRODUCTION ENGINEERING

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

- 1. Attempt any FIVE questions out of EIGHT questions.
- 2. Each question carries TWENTY marks.
- Q1 a) What are the reasons for the large variety in casting processes that have been developed over the years? Explain with specific examples.
 - b) Explain why the strength to weight ratio of die cast parts increases with decreasing wall thickness.
- Q2 a) Explain how are the dissolved gases removed from the molten metal?
 - b) Why is Bernauli equation important in casting? Explain its application in analysis.
- Q3 a) What is the consequence of applying too high a back tension in rolling?
 - b) What are the advantages of isothermal forging?
- Q4 a) What are the hybrid thermal manufacturing processes? Give their classification and applications.
 - b) What is the role of non dimensional analysis in correlating input and output parameters? Explain with an example.
- Q5 a) Explain what is meant by standards of measurement? What role temperature plays during measurement of dimensions?
 - b) Identify several factors that can cause a process to become out of control.
- Q6 a) What do you understand by nanometrology? How it is practiced?
 - b) Describe the six sigma strategy and practices and their relevance.
- Q7 a) Explain the method of correlating input parameters with output parameters. How do you ensure this correlation by hypothesis testing?
 - b) What is the objective of tolerance stacking? How do you select the reference surface before implementing the same? Explain taking a simple example.
- Q8 Write short notes on the following :
 - a) Non Conventional Machining Processes.
 - b) Error due to numerical interpolation.
 - c) Methods of improving surface integrity.