GAYA COLLEGE OF ENGINEERING

Department of Science & Technology
BIHAR

DEPARTMENT OF MECHANICAL ENGINEERING

Manufacturing by Shaping & Joining (MSJ)

Instructor: Mr. Suryakant Kumar (Asst. Professor)

Note: Use pencil for Diagrams and Plain paper (without any lines) copies

Assignment 1

Submission Date: 3rd April 2018
Max. Marks: 100

Q.1 Describe and explain the operation of a cupola furnace for melting cast iron, crucible furnace and electric furnace with neat and clean diagrams. **10 Marks**

Q.2 Describe the melting and casting practices related to cast iron, steel, aluminum and its alloys, copper and its alloys. **10 Marks**

Q.3 What is air-aspiration effect? How we can minimize the effect by mold designing? Explain with proper mathematical expressions. **10 Marks**

Q.4 Explain various types of expendable mold and permanent mold castings with neat and clean diagrams. **10 Marks**

Q.5 Describe the permanent mold castings with application, advantages and disadvantages. **10 Marks**

Q.6 Explain various type of casting defects and remedies to minimize it. **10 Marks**

Q.7 Derive the expression for mold filling time in top and bottom gating system. Use neat and clean diagrams with proper dimensioning and assumptions to explain. **20 Marks**

Q.8 Explain various types of allowance used in casting. P Temperature Vs. Time plot and show various shrinkages associated with solidification of molten liquid metal. Use neat and clean diagrams for the explanation. **20 Marks**

EOQ.