

CONFIDENTIAL



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2012/2013**

COURSE NAME : METAL CASTING
COURSE CODE : DAM 34803
PROGRAMME : 3 DAI
EXAMINATION DATE : MARCH 2013
DURATION : 2 1/2 HOURS
INSTRUCTIONS : ANSWER **FOUR (4)** QUESTIONS ONLY

THIS QUESTIONS PAPER CONSISTS OF THREE (3) PAGES

CONFIDENTIAL

- Q1**
- (a) Why is it important to provide a means of venting gases from the mold cavity.
(6 marks)
 - (b) Explain the roles of casting volume and surface area related to the total solidification time and Chvorinov's rule .
(6 marks)
 - (c) Explain the effect of sand to casting quality .
(6 marks)
 - (d) Predict what are the possible approaches that can prevent the formation of gas porosity in a metal casting.
(7 Marks)
- Q2**
- (a) Define fluidity in the casting process and how to measure it.
(6 marks)
 - (b) Define misrun in the casting defect and elaborate on how this defect form in the casting.
(6 marks)
 - (c) Define permeability in sand casting and why permeability important in sand casting.
(6 marks)
 - (d) Why gating design is very important in metal flow of casting.
(7 marks)
- Q3**
- (a) Describe the two stages of solidification.
(6 marks)
 - (b) Define choke and demonstrate how its placement affects the metal flow.
(6 marks)
 - (c) Explain the correlation between cooling rate and final properties of a casting.
(7 marks)
 - (d) What is the chill zone of a casting, and why does it form.
(6 marks)

- Q4** (a) What are the features which affect the life of a permanent mold. (7 marks)
- (b) If you need only five units of casting, which process would you use. Explain your reason. (6 marks)
- (c) Explain the difference between *core* and *pattern*. (6 marks)
- (d) Describe the squeeze casting process. (6 marks)
-
- Q5** (a) What are some of the major disadvantages of the expandable-mold casting process. (6 Marks)
- (b) Why are allowances provided for in the production of patterns. (6 marks)
- (c) Describe some of the key features observed in the cooling curve of a pure metal. (6 marks)
- (d) Why is it important to design the geometry of the gating system to control the rate of metal flow as it travels from the pouring cup into the mold cavity. (7 marks)
-
- Q6** Please explain 6 stages of Investment Casting Process (25 marks)

- END OF QUESTION -