



# MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)

University Examinations for 2015/2016

## SCHOOL OF ENGINEERING AND TECHNOLOGY

### DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

### SECOND SEMESTER EXAMINATION FOR DIPLOMA IN MECHANICAL ENGINEERING

#### 2501/305B: FOUNDRY TECHNOLOGY

DATE: 5/8/2016

TIME: 2:00 – 4:00 PM

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#### INSTRUCTIONS

- Answer **ALL** questions
- Clear drawings will constitute an integral part of this examination
- This examination contributes **70%** of this Semester's grade.

1.
  - (a) Explain the six basic steps in making a sand casting (6 marks)
  - (b) Explain the procedure for making a simple sand mould. (8 marks)
  - (c) With the aid of sketches explain the following casting defects.
    - (i) Misrunssrans
    - (ii) Cold shuts
    - (iii) Cold shots (6 marks)
2.
  - (a) List **FIVE** characteristics of a good dry sand core (5 marks)
  - (b) With the aid of sketches describe the following types of patterns
    - (i) Sweep
    - (ii) Segmental
    - (iii) Skeleton (15 marks)
3.
  - (a) Sketch and label a gating system for sand casting (8 marks)
  - (b) List any **FIVE** factors considered for the choice of the furnace in casting (5 marks)

- (c) Explain fettling as regards casting processes. (7 marks)
4. (a) Describe any **THREE** constituents of moulding sand (9 marks)
- (b) Explain the following properties of moulding sand (6 marks)
- i) Flowability
  - ii) Refractoriness
  - iii) Collapsibility
- (c) List the steps taken in the preparation of moulding sand (5 marks)
5. (a) State **FIVE** essential characteristics of a good core (5 marks)
- (b) Sketch and label the following types of core
- (i) Balanced core
  - (ii) Ram-up core
  - (iii) Kiss
- (15 marks)