UNIVERSITY OF JOHANNESBURG

PROGRAM	:	NATIONAL DIPLOMA *ENGINEERING METALLURGY*
SUBJECT	:	**FOUNDRY TECHNOLOGY II**
CODE	:	**FTY21-1**
DATE	:	SSA EXAMINATION 28 JULY 2016
DURATION	:	(X-PAPER) 15:00 - 18:00
WEIGHT	:	40 : 60
TOTAL MARKS	:	73
FULL MARKS	:	65

EXAMINER	:	MR JW DE BEER
MODERATOR	:	DR K NYEMBWE 5095
NUMBER OF PAGES	:	3 PAGES

INSTRUCTIONS : QUESTION PAPERS MUST BE HANDED IN.

INSTRUCTIONS TO CANDIDATES:

PLEASE ANSWER ALL THE QUESTIONS.

QUESTION 1

1.1 Provide an outline of the casting production process, giving a brief description of each of the five stages. (15)
[15]

QUESTION 2

2.1 Silica and chromite sand are not compatible when mixed in moulding sand. Discuss. (5)

2.2 Discuss the gravity die casting process. (5)
[10]

QUESTION 3

3.1 What are the advantages and disadvantages of the alkaline phenolic binder system? (8)

3.2. Which of the above advantages make alkaline phenolic more suitable than furan? (1)

3.3 Name three (3) gas triggered moulding or core making processes. (3)
[12]

QUESTION 4

4.1 The Gas Cushion and Reducing Atmosphere theories have been proven false as they relate to the activity of coal dust. What factors have been disproven? (4)

2.1 Discuss sand milling, differentiating between the types of mills. (9)
[13]

QUESTION 5

5.1 What would be the advantages of using ready creams, over the use of powder coatings? (4)
[4]

QUESTION 6

6.1 Differentiate between direct and indirect arc furnaces under the following headings:

6.1.1 Materials Melted (2)
6.1.2 Number of electrodes (2)
6.1.3 Heating method (2)
6.1.4 Method of composition control (2)
[8]

QUESTION 7

7.1 Discuss the operation of the "indirect arc furnace". (6)
[6]

QUESTION 8

8.1 Explain in your own words one method of melt quality control used in foundries. (5)
[5]