



<b>SM</b>	
<b>EM</b>	
<b>FM</b>	

**FACULTY OF SCIENCE**

**DEPARTMENT OF APPLIED PHYSICS AND ENGINEERING MATHEMATICS**

NATIONAL DIPLOMA:  
*EXTRACTION METALLURGY*  
*ENGINEERING METALLURGY*

**MODULE**     MAT2AE2  
**CAMPUS**     ENGINEERING MATHEMATICS 2  
                    DFC

**NOVEMBER EXAMINATION**

**DATE 07/11/2015**

**SESSION 08:30 – 10:30**

**ASSESSOR**

**MR MP SELOANE**

**INTERNAL MODERATOR**

**MR IK LETLHAGE**

**DURATION    2 HOURS**

**MARKS    70**

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**SURNAME AND INITIALS:** \_\_\_\_\_

**STUDENT NUMBER:** \_\_\_\_\_

**CONTACT NO:** \_\_\_\_\_

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**NUMBER OF PAGES: 16**

**REQUIREMENTS : INFORMATION BOOKLET**  
**: NON-PROGRAMMABLE SCIENTIFIC CALCULATOR**



(5)

[illegible]

[illegible]













(7)

[illegible]

### 3.3 $\int x^2 \sin x dx$

(5)

[illegible]

[illegible]

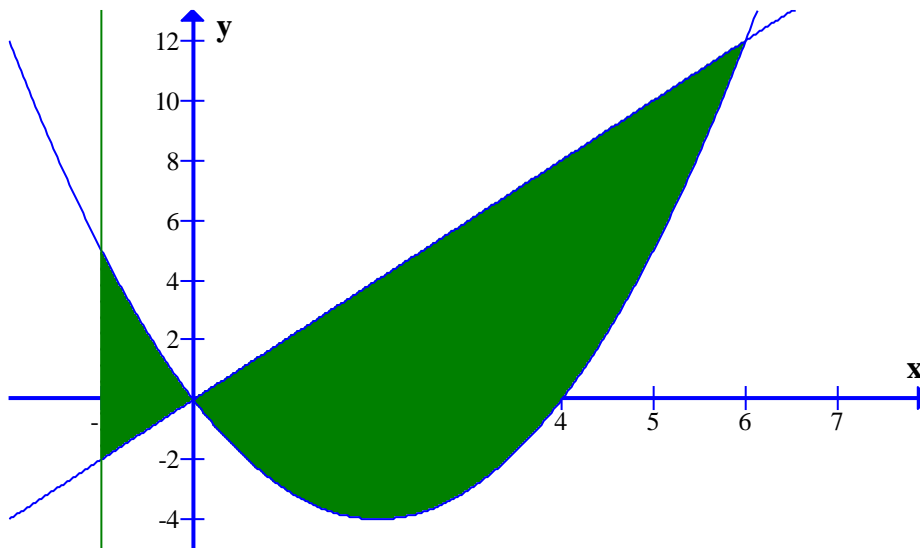
[illegible]

(5)

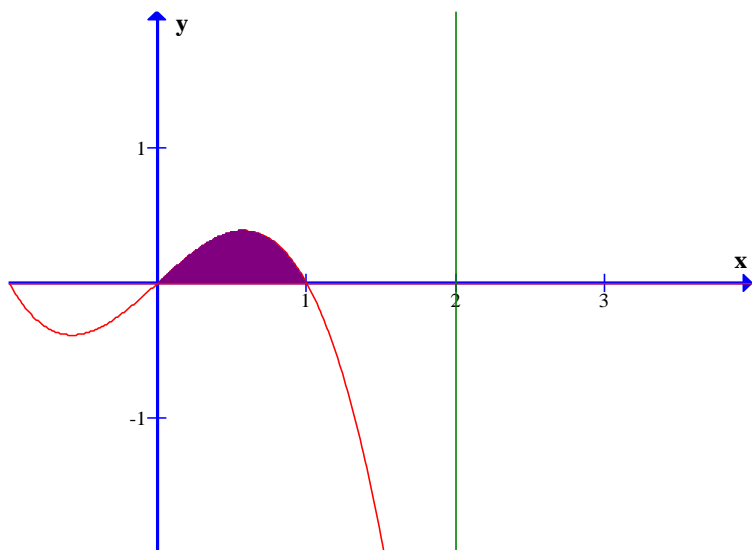
[illegible]

### QUESTION 4 [9]

4.1 Calculate the area of the region bounded by the curves  $y = 2x$ ,  $y = x^2 - 4x$  and  $x = -1$ . (5)

[illegible]

4.2 The region bounded by the curves  $y = x - x^3$  and  $y = 0$ ,  $0 \leq x \leq 1$ , is revolved about the line  $x = 2$ . Calculate the volume of the resulting solid. (4)




TOTAL MARKS : 70

AVAILABLE MARKS : 71

[illegible]