



ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE
FACULTY OF ENGINEERING
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

SEMESTER II EXAMINATION, 2015/2016 ACADEMIC SESSION

COURSE TITLE: ASSEMBLY LANGUAGE PROGRAMMING

COURSE CODE: ECE 413

EXAMINATION DATE:

COURSE LECTURER: DR S.A. BELLO

A rectangular box containing a handwritten signature in black ink. The signature is stylized and appears to be 'S.A. Bello'.

HOD's SIGNATURE

TIME ALLOWED: 2 HRS

INSTRUCTIONS:

1. ANSWER 3 QUESTIONS ONLY
2. SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM.
3. YOU ARE NOT ALLOWED TO BORROW ANY MATERIAL DURING THE EXAMINATION.

Question #1

- 1a) Using your knowledge of Assembly Programming Language what do you understand by the word portability? (5 marks)
- 1b) What is the sum of each pair of binary integers? (10 marks)
 - i. 00001111 00000010
 - ii. 11010101 01101011
 - iii. 00001111 00001110
- 1c) What is the usefulness of pressing *Ctrl-Alt-Delete* (5 marks)

Question #2

- 2a) Name two types of applications that would be better suited written using Assembly Language than a High-Level Language and why? (5 marks)
- 2b) Provide comments to show the following lines of code (10 marks)

```
myVar DWORD 26 ;  
mov eax,myVar ;  
target:  
mov ax,bx  
jmp target  
inc eax ;  
mov count,ebx ;  
imul eax,ebx,5 ;
```
- 2c) What is the 16-bit hexadecimal representation of each signed decimal integer? (5 marks)
 - i. 26
 - ii. 452

Question #3

- 3a) Why is Assembly Language not usually used when writing large application programs? (5 marks)
- 3b) Find the final content of *eax* if the following code is executed by hand (5 marks)

```
.code  
main PROC  
move ax,10000h  
sub eax,3000h  
add eax, 2000h
```
- 3c) What is the decimal equivalent of the following? (10 marks)
 - i) 8D34
 - ii) 63C2

Question #4

- 4a) What do you understand by the term Virtual Machine? (5 marks)
- 4b) What is the hexadecimal representation of each of the following binary numbers? (10marks)
 - i. 1100 1111 0101 0111
 - ii. 0101 1100 1010 1101
 - iii. 1001 0011 1110 1011
- 4c) Describe the state of a system that boots to Protected Mode (5 marks)

Question #5

- 5a) Create a truth table for $(Y \wedge S) \vee (X \wedge \neg S)$ (10marks)
- 5b) What software permits compiled Java programs to run on almost any computer? (5 marks)
- 5c) Give one example each of the classes of characters used in Assembly Language to complete the following table as done in the 1st column. (5 marks)

Class	Example
Reserved Words	MOV
Operands	
Integer Constants	
Identifiers	
Directives	
Code Label	