BEYKENT UNIVERSITY — *Faculty of Engineering and Architecture*

(50 minutes)

Name, Surname :
Student ID :
ANSWER SHEET
Course Code : 520000002261195
Title : INTRODUCTION TO COMPUTER ENGINEERING
Assessment : ☐ Quiz ☒ Midterm ☐ Final
Date : 13.11.2017 12.00

Please ensure that your name appears on each booklet, together with the number of questions attempted.

Question Number Attempted	1	2	3	4	5	6	7	**Total**
Marks Awarded	10	20	10	10	10	20	20	100

(10 points) 1. What are the 3 basic functions of an operating system? Explain each in 1 sentence.

- schedule programs for execution
- coordinate the execution of programs
- store and retrieve files

(20 points) 2.

a. Represent the bit pattern 101111101101001001011 in hexadecimal notation.

1011 1110 1101 0010 0101 1 1
5 F 3 4 9 7

b. 5FADE is the hexadecimal representation for what bit pattern?

0101 1111 1010 1101 1110

c. What are the parity bits in (a) and (b)? (a) and (b) has even number of 1's, so the parity bit is "1" in both cases.

(10 points) 3. What is Kernel? Explain briefly.

Main operating system component to perform file management, memory management, process scheduling and dispatching tasks. It's in the heart (core) of the operating system.

(10 points) 4. What is Deadlock? Explain briefly.

A situation when at least 2 processes block each other from continuing due to mainly a non-sharable resource. (Like trains in a junction)

+5 in 7 bits. ⇒ 0000101 ⟹ convert all bits, add 1 → 1111010 + 1.

(10 points) 5. ..1111011.... represents the value -5 in two's complement notation using 7 bits. 1111011

(20 points) 6. What is the result of the following (using two's complement notation)?

```
  00001111
+ 10101010
-----------
 ·10111001·
```

```
  00001111   positive
- 10101010   negative
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 ··01100101·
```
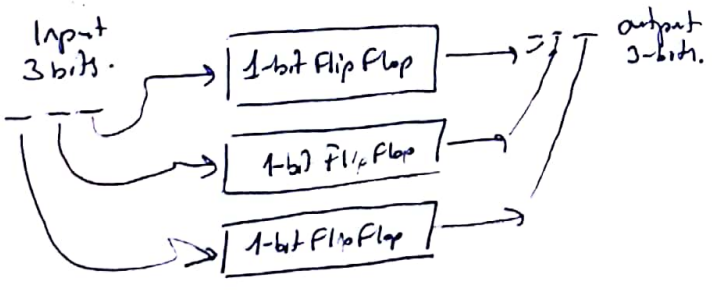

pos − neg ⇒ result will be positive

(20 points) 7. How would be a 3-bit Flip-Flop? Draw and explain briefly.



1-bit FlipFlop (as in slide)