Sichuan University Examination

(Closed Book)

(2020-2021 Academic Year 9thNOVEMBER) A

课程号 Course Number: 304131030　　课程名称 Course Title: Digital Logic

任课教师 Lecturer: Xuedong Yuan　　考试时间 Time Period: 90 minutes

学生姓名 Name:　　学号 Student ID:　　成绩 Total Mark:

考生承诺

Student Commitment

我已认真阅读并知晓《四川大学考场规则》和《四川大学本科学生考试违纪作弊处分规定（修订）》，郑重承诺：

I have read and comprehended the"Regulations of Sichuan University on Examinations". I give my commitments as follows:

1、已按要求将考试禁止携带的文具用品或与考试有关的物品放置在指定地点；

1. I have put prohibited stationary and exam-related items at designated area as required.

2、不带手机进入考场；

2. I have not brought cell phone to the examination room.

3、考试期间遵守以上两项规定，若有违规行为，同意按照有关条款接受处理。

3. During the examination, I will comply with the above two provisions. If there is any violation, I agree to accept the punishments in accordance with the relevant provisions.

考生签名：

Signature:

题号	一(20%)	二(20%)	三(60%)	四(0%)	五(0%)
得分					
卷面总分		教师签名		阅卷时间	

Notice: 1. Please write your student ID and your name in both exam papers and added answer papers precisely;

2.Please write all your answers on this exam paper;

3.After the exam, please hand in exam paper, added answer sheet and scratch papers to examiners all together.

评阅教师	得分

一、填空题 Fill in the blanks（本大题共 10 空，每空 2 分，共 20 分）。

1.A pulse in a certain waveform has a frequency of 100Hz. It repeats itself every_____(ms).

2._____is a data storage device.

3. Convert hexadecimal number $2C_{16}$ to decimal _____.

4. Add the BCD numbers 01010001 + 00110011 = _____.

5.The complement code of $(-98)_{10}$ is _____.

6. The output of a NAND gate with 3 inputs *A*, *B* and *C* is 1 (HIGH) when A=____, B=_____, C=_____.

7. When the input to an inverter is HIGH (1), the output is _____.
8. _____are called universal gates.

评阅教师	得分

二、判断题 True/False Questions（本大题共 10 空，每空 2 分，共 20 分）。

_____ 1.A digital quantity has no discrete values.

_____ 2. In positive logic,a HIGH level represents a binary 0.

_____ 3. A AND gate only has two inputs.

_____ 4. In hexadecimal, 8+5 = 13.

_____ 5. BCD stands for binary coded decimal.

_____ 6. An error in a given code can be detected by verifying the parity bit.

_____ 7. The hexadecimal number system has 16 characters, six of which are alphabetic characters.

_____ 8. A NOR gate can be considered as an OR gate followed by an inverter.

_____ 9. If the two inputs of a NOR gate are different,the output is 0.

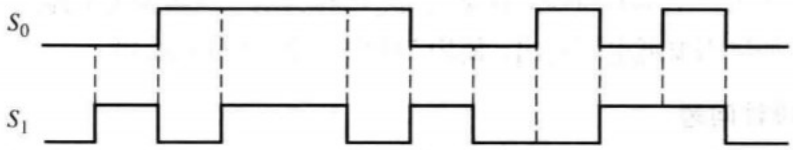
_____ 10. A truth table illustrates how the input level of a gate responds to all the possible output level combinations.

评阅教师	得分

三、问答题 Question and Answer（本大题共 3 小题，共 60 分）。

1. Convert the given numbers to decimal:
(a) 1011_2 (b) 101010_2 (c) 21_{16} (d) $8F_{16}$ (e) 15_8 (f) 33_8
(g) 01000011(BCD) (h) 10010010(BCD)

2. Determine the output of a NOR gate for the input waveforms in following Figure and draw the timing diagram.



3. Determine the gate output for the input waveforms in following Figure and draw the timing diagram.