University of Asia Pacific

Department of CSE

Semester Final Examination, Spring 2020

Name: Rashik Rahman

Reg ID: 17201012

Year: 3rd

Semester: 2nd

Course Code: CSE 315

Course Title: Peripheral & Interfacing

Date: 31.10.2020

"During Examination and upload time I will not take any help from anyone. I will give my exam all by myself."

University of Asia Pacific

Admit Card

Final-Term Examination of Spring, 2020

Financial Clearance	PAID

Registration No : 17201012
Student Name : Rashik Rahman
Program : Bachelor of Science in Computer Science and Engineering

SI.NO.	COURSE CODE	COURSE TITLE	CR.HR.	EXAM. SCHEDULE
1	CSE 313	Numerical Methods	3.00	
2	CSE 314	Numerical Methods Lab	0.75	
3	CSE 315	Peripheral & Interfacing	3.00	
4	CSE 316	Peripheral & Interfacing Lab	1.50	
5	CSE 317	Computer Architecture	3.00	
6	CSE 319	Computer Networks	3.00	
7	CSE 320	Computer Networks Lab	1.50	
8	CSE 321	Software Engineering	3.00	
9	CSE 322	Software Engineering Lab	0.75	

Total Credit: 19.50

1. Examinees are not allowed to enter the examination hall after 30 minutes of commencement of examination for mid semester examinations and 60 minutes for semester final examinations.

2. No examinees shall be allowed to submit their answer scripts before 50% of the allocated time of examination has elapsed.

3. No examinees would be allowed to go to washroom within the first 60 minutes of final examinations.

4. No student will be allowed to carry any books, bags, extra paper or cellular phone or objectionable items/incriminating paper in the examination hall.
Violators will be subjects to disciplinary action.

This is a system generated Admit Card. No signature is required.

Admit Card Generation Time: 27-Oct-2020 08:43 PM

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Answer to the Q. NO. 1(a)

```
#include<servo.h>

const int trig=13;
const int echo=12;
Servo servo_t;
int i=0;
int id= 012;
int pos=0;
void setup(){

    servo_t.attach(9);
    Serial.begin(9600);
    for(pos
    id=Serial.read();
    for(pos=0; pos<id; pos++)
    for (pos=0; pos<=id; pos++)
        {
          servo_t.write(pos);
        delay(15);
        }
    pinMode(trig, OUTPUT);
    pinMode (echo, INPUT);
    long distance, duration;
    digitalWrite(trig, LOW);
      delayMicroseconds(2);
    digitalWrite(trig, HIGH);
    delayMicroseconds(10);
```

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```
digitalWrite(trig, LOW);
duration = pulseIn(echo, HIGH);
distance = (duration/2) * 0.034;
long area = 3.1416 * distance * distance;
area = 3.1416 * distance * distance;
Serial.print(area);
Serial.println();
Serial.end();
}

void loop(){

}
```

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Answer to the Q.NO.2(a)

rege = 17201012

0 = 0000

1 = 0001

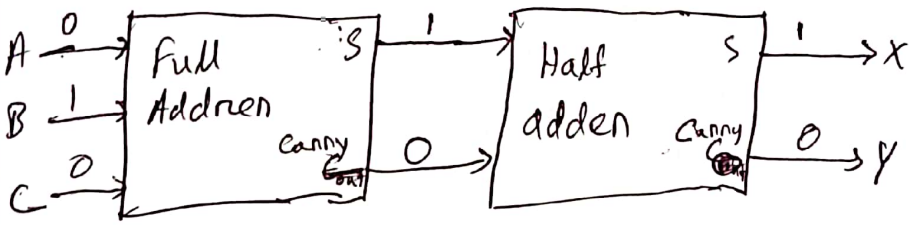
2 = 0010

last three digits = 0, 1, 0

∴ A = 0

B = 1

C = 0



So the value of xly would be 1,0.

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Sketch:

```
byte A,B,C, S, Canny, X, Y;
void setup(){
    pinMode (7, INPUT);
    pinMode (8, INPUT);
    pinMode (9, INPUT);
    pinMode (13, OUTPUT); //value of X
    pinMode (12, OUTPUT); //value of Y


}
void loop(){
    A = digitalRead(7);
    B = digitalRead (8);
    C = digitalRead (9);

    S = A^B^C;
    Canny = (A&B)|(B&C)|(A&C);

    X = S^Canny;
    Y = S&Canny;
    digitalWrite (13, X);
    digitalWrite (12, Y);

}
```

Answer to the Q. No. 3(a)

$F = AB\bar{C}(D+\bar{D}) + A\bar{B}\bar{C}D + ACD(\bar{B}+B) + AC\bar{D}(B+\bar{B})$

$= AB\bar{C} + A\bar{B}\bar{C}D + ACD + AC\bar{D}$ $[x+\bar{x}=1]$

$= AB\bar{C} + A\bar{B}\bar{C}D + AC(D+\bar{D})$

$= AB\bar{C} + A\bar{B}\bar{C}D + AC$ $[x+\bar{x}=1]$

$= A(B\bar{C}+C) + A\bar{B}\bar{C}D$

$= A(B+C) + A\bar{B}\bar{C}D$ $[x+\bar{x}y = x+y]$

$= AB + A\bar{B}\bar{C}D + AC$

$\Rightarrow A(B+\bar{B}\bar{C}D) + AC$

$\Rightarrow A(B+\bar{C}D) + AC$ $[x+\bar{x}y = x+y]$

$\Rightarrow A(B+\bar{C}D) + AC$ $[x+\bar{x}y = x+y]$

$\Rightarrow AB + A\bar{C}D + AC$

$\Rightarrow AB + AC(C+\bar{C}D)$

$\Rightarrow AB + AC(C+D)$ $[x+\bar{x}y = x+y]$

$\Rightarrow AB + AC + AD$

$\Rightarrow A(B+C+D)$

$\therefore F = A(B+C+D)$

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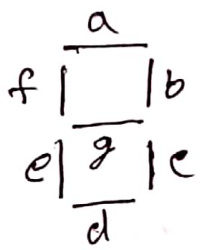
Sketch:

```
byte A,B,C,D,E,F;

void setup(){
    pinMode(13,OUTPUT);
    pinMode(12,INPUT);
    pinMode(11,INPUT);
    pinMode(10,INPUT);
    pinMode(9,INPUT);
}

void loop(){
    A = digitalRead(12);
    B = digitalRead(11);
    C = digitalRead(10);
    D = digitalRead(9);

    E = B|C;

    F = E|D;
    digitalWrite(13,(A&F));
}
```

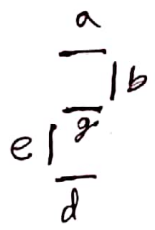
Answer to the Q.No. 3(b)

~~last~~
reg = 17201012
last digit = 2

Segment orientation,



So for 2 orientation would be



Sketch:

```
#define SegA 12
#define SegB 11
#define SegC 10
#define SegD 9
#define SegE 8
#define SegF 7
#define Segb 6
```

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```
int valo = 2;

voido ~~setup~~ setup() {

    pinMode (segA, OUTPUT);
    pinMode (segB, OUTPUT);
    pinMode (segC, OUTPUT);
    pinMode (segD, OUTPUT);
    pinMode (segE, OUTPUT);
    pinMode (segF, OUTPUT);
    pinMode (segG, OUTPUT);
    // The following code will show 2 in 7segment display
    digitalWrite (segA, LOW);   //orientation and digitalWrites
    digitalWrite (segB, LOW);   //are Ok and validated.
    digitalWrite (segC, HIGH);
    digitalWrite (segD, LOW);
    digitalWrite (segE, LOW);
    digitalWrite (segF, HIGH);
    digitalWrite (segG, LOW);

}
void loop() {


}
```

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Answer to the Q.No. 4 (a) OR

Comparison Operator:

Operator Name	Sign	Example; Considering A=10, B=20.
Equal	==	A==B; False
Not equal	!=	A!=B; True
Less than	<	A<B; True
Greater than	>	A>B; False
Less than or equal to	<=	A<=B; True
Greate than or equal to	>=	A>=B; False

As I have to do comparison I'll choose comparison operator.

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Answer to the Q.No. 4(b) OR

Serial.print():

Prints the data to the serial port as human readable ASCII text. This command can take many forms. Numbers are printed using an ASCII character for each digit. floats are similarly printed as ASCII digits, defaulting to two decimal places. Bytes are sent in a single character. Characters and strings are sent as is. Ex:

i) Serial.print(78); gives "78"
ii) Serial.print(39.043); gives "39.03"
iii) Serial.print("Hi"); gives "Hi"

An optional second parameter specifies the base or format to use; permitted values are BIN (binary), OCT (octal), DEC (decimal), HEX (hexadecimal). For floating point numbers this parameter specifies the number of decimals places to use. For example:

i) Serial.print(2, BIN); gives "0000 0010"
ii) Serial.print(12.034, 0); gives "12"
iii) Serial.print(12.034, 3); gives "12.034"

Function Prototyping:

The first way is just writing the part of the function called a function prototype above the loop function, which consists of

i) Function return type
ii) Function name
iii) Function argument type, argument name isn't needed
iv) Function prototype must be followed by a semicolon (;)

Example sketch:

```
int sum(int a, int b);
void setup(){

}
void loop(){
    int result = sum(10,20);
}
int sum(int a, int b){
    return a+b;
}
```