ASSUMPTION UNIVERSITY

Vincent Mary School of Engineering
Final Exam 3/2020 (SET 4)

Course Number   : EE3704 Embedded System

Date   : 1 June 2021

Time   : 90 Minutes (+15 Minutes Upload time)

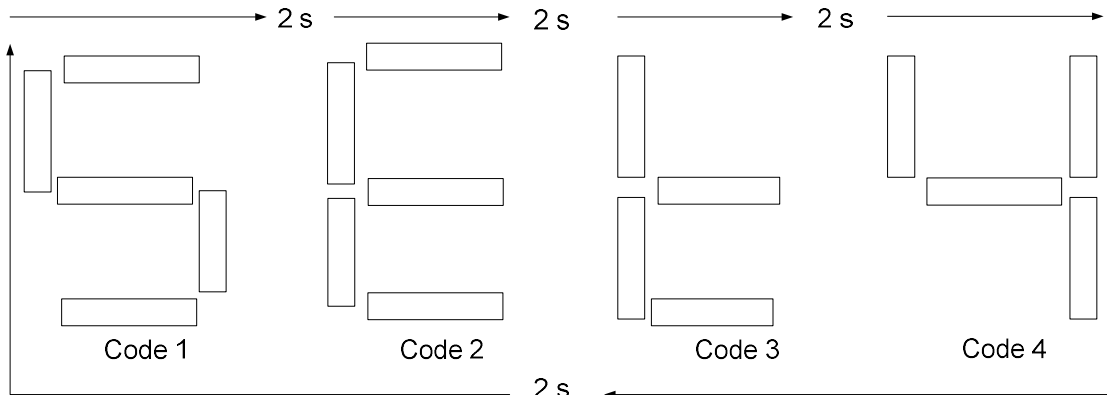Name………………………………………… Student ID………..……………...

Instructions

- There is only 1 problem to this exam. Total scores are 150 points accounted for 50% toward your final grade.
- **All notes, personal notebook, tablet is allowed. Internet is to be used for search engine, sending information is strictly not allowed and taken as cheating**.
- AL: Active low, AH: Active high.
- Pins M, N, O, P, W, X, Y, Z are selectable.
- Total of 2 pages including this cover page.
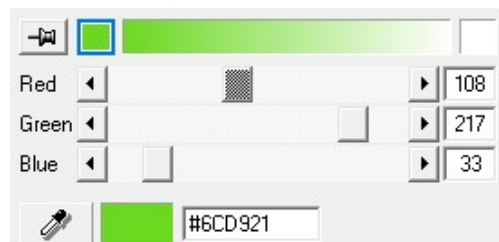- 1 Assistant equivalent to 50 points reduction.
- Stay clam.

1. **(150 points)** You are the <u>best</u> programmer of **Arduino-System** of your company. You task are to programming and perform the following task:
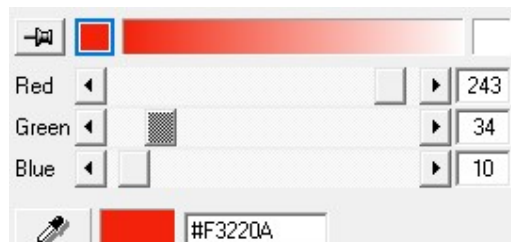
o With normal condition (SW1 and SW2 did not pressed), CA 7 Segments show the codes as follow in the loop. Other functions should not work (LED, RGB, Fan and buzzer must be off).

	2 s		2 s		2 s	
Code 1		Code 2		Code 3		Code 4

2 s

o When SW1 is pressed and released (not interrupt), operate the functions below for 1 loop. Other functions show not works (7segment, LED and buzzer must be off).

o If room is normal condition, Fan operate CW 75% for 5s and stop. RGB shows

o If room is dark condition, Fan operate CCW 40% for 5s and stop. RGB shows

o When SW2 is pressed and released (not interrupt), Buzzer will play Do Re Me Fah Son Ra Te (with any frequency) sound for 1 loop. On LED1 during Buzzer play these sound notes. Other functions should not works (7Segment, Fan and RGB must be off).

PinP — PWM — driver — fan

Pin 3
Pin 4 — direction

5V

+
Buzzer
-

PinX

10 K
5V SW2

Pin4

PinY

10 K
5V SW1

PinW — 1 k — PN2222

CA 7Segment

Pins:12-18   7
f a b
g
e c
d

LDR

PinZ — Pin7 — 220 — LED1 — 5V

RGB Active low

PinM

PinN — Vcc

PinO