9.

a) Read the current time from the system and display it in the standard format on the screen.

```
.model small

.stack

.data

.code

z db 3 dup(0)

mov ax,@data

mov ds,ax

mov ah,2ch

int 21h

lea si,z

mov [si],ch

inc si

mov [si],cl

inc si

mov [si],dl

inc si

lea si,z

mov cl,03h

up: mov al,[si]

 call disp

 inc si

 dec cl

 jz down

 mov dl,";"

 mov ah,02h
```

```
 int 21h
 jmp up
down: mov ah,4ch
 int 21h
disp PROC
AAM
add ax,3030h
mov bx,ax
mov dl,bh
mov ah,02h
int 21h
mov dl,bl
mov ah,02h
int 21h
RET
disp ENDP
end
```

b) Generate the Sine Wave using DAC interface (The output of the DAC is to be displayed on

the CRO).

```
.model small
.stack
.data
.code
array db 7fH, 8cH, 99H, 0a6H, 0b2H, 0beH, 0c9H, 0d3H, 0ddH, 0e5H, 0ecH,
0f3H, 0f7H, 0fbH, 0fdH, 0feH, 0fdH, 0fbH, 0f7H, 0f3H, 0ecH, 0e5H, 0ddH,
```

```
0d3H, 0c9H, 0beH, 0b2H, 0a6H, 99H, 8cH, 7fH

db 71H, 64H, 57H, 4bH, 3fH, 34H, 2aH, 20H, 18H, 11H, 0aH, 06H, 02H,
01H,

00H, 01H, 02H, 06H,0aH, 11H, 18H, 20H, 2aH, 34H, 3fH, 4bH, 57H, 64H,
71H

len dw ($-array)

PA equ 9800H

PB equ 9801H

PC equ 9802H

CR equ 9803H

mov ax,@data

mov ds,ax

mov al,80H

mov dx,CR

out dx,al

up1 : lea si, array

mov cx,len

up : mov dx,PA

mov al,[si]

out dx,al

mov dx,PB

out dx,al

call delay

inc si

loop up

jmp up1

mov ah,4cH

int 21H
```

```
delay PROC
mov bl,0FFH
up2 : dec bl
jnz up2
RET
Delay ENDP
end
```