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1604E068

Candidate's Seat No :_____

B.Sc. Sem-6 Examination
CC 308
Electronics
April 2022

Time : 2-00 Hours]

[Max. Marks : 50

SECTION – I

Q.I	A. Explain 4-bit binary ladder and derive the equation for output voltage.	07
	B. Explain 3-bit simultaneous A/D converter.	07

Q.II	A. (i) Draw the binary ladder with a digital input of 0100. (ii) With illustration explain monotonicity test	07
	B. Draw the block diagram of successive-approximation converter and explain its working.	07

Q.III	A. Write a program to turn a light on and off every 5 seconds. Use data bit D_7 to operate the light.	07
	B. Write a program to count from 0 to 20H with delay of 100ms between each count. After 20H, counter should be reset itself and repeat the sequence. Use register pair DE for a delay register. Draw a flowchart and show the calculation for 100ms time delay.	07

Q.IV	A. Write a program to generate a square wave with a period of 400μs. Assume the system clock frequency is 3MHz. Use bit D_o to output the square wave.	07
	B. Write a program to count continuously in hexadecimal from FFH to 00H in a system with a 0.5μs clock period. Use registers B to set up a 2ms delay between each count and display the numbers at output port 02H.	07

P.T.O

E 68-2

Q.V	A. Discuss the similarities and differences between of instruction set CALL & RET with PUSH & POP in detail	07
	B. Illustrate how information is exchanged between the program counter and the stack and identify the contents of the pointer register when a subroutine is called.	07

Q.VI	A. What do you understand by RST instruction? List all the RST instructions and explain them.	07
	B. Write a 30 ms time delay subroutine using register pair BC. Clear the Z flag without affecting any other flags in the flag register and return to the main program.	07

Q.VII	A. Explain 8255A general – purpose programmable devices, compatible with any microprocessor.	07
	B. Write a program to generate square wave.	07

Q.VIII	A. Explain DAC 0808 giving its features, pin configuration, block diagram and typical applications.	07
	B. Write a note on Mode 0 and BSR Mode.	07

SECTION – II

Q.IX Attempt any **EIGHT** (08)

A	What is the weight of LSB of a 10-bit converter?	1
B	Why a 16-bit address is stored in reversed order?	1
C	Define: stack.	1
D	How many comparators are needed for a 3-bit simultaneous A/D converter?	1

E 68-3

E	Give the name of the fastest A/D converter.	1
F	What is differential linearity?	1
G	A 4-bit resistor divider D/A converter uses 80kΩ resistor for MSB. The resistor value used for LSB will be _____.	1
H	Which flag is affected in SHLD instruction?	1
I	To set register C as a counter for 10 decimal counts, what should be the content of register C?	1
J	What is the function of instruction RPO?	1
K	How many T states are required for LXI B, 1010 H instruction?	1
L	Accumulator is loaded with the bit pattern 10101010. Carry is 1. After RRC what will be the content of accumulator?	1
M	All the functions of the ports of 8255 are achieved by programming the bits of an internal register called _____.	1
N	Which port can be divided into two 4-bit ports under the mode control in 8255?	1
O	With which instruction the accumulator can be viewed as 9-bit register?	1
P	How many bits are required if a DAC get a resolution of 1 mV, if full scale output voltage is 10 V?	1