

B.Sc. Sem.-6 Examination

CC 308

Electronics

April 2023

Time : 2-30 Hours]

[Max. Marks : 70

- Instructions :** (1) All question carry equal marks.
 (2) Symbols carry their usual meaning.

- 1 (a) Explain about R/2R type D/A converter in detail. 7
 (b) For a 5 bit resistor divider, determine : 7
 (i) Weight of L.S.B. (ii) Weight of M.S.B. (iii) The o/p voltage :
 Here digital i/p is 10110 &
 0 = 0v & 1 = +10v.
- OR
- 1 (a) Explain about counter type A/D converter. 7
 (b) Explain about 3 bit simultaneous A/D converter. 7
- 2 (a) Write a program to count from 0 to 9 with 1 sec. delay between each count. After count 9 it restart to 0 & repeat the sequence continuously. Clock freq. = 2 MHz. 7
 (b) Explain time delay using a register pair with proper example. 7
- OR
- 2 (a) Explain time delay using a loop with in a loop with proper example. 7
 (b) Write a programme to generate continuous square wave with period of 400 ns. Assume that the system clock period is 300 ns. Use bit Do to o/p the square wave. 7
- 3 (a) Write a programme to provide the given ON/Off 3 traffic lights & 2 pedestrian signs. 7
- | Lights | Data bits | On time |
|------------|-----------|---------|
| Green | D0 | 20 sec |
| Yellow | D1 | 5 sec |
| Red | D4 | 25 sec |
| Walk | D5 | 20 sec |
| Don't walk | D6 | 30 sec. |
- Pedestrian should cross the road when green light is on.
- (b) Give difference & similarity between CALL & RET as well as PUSH & POP. 7
- OR
- 3 (a) Write a programme to performe following : 7
 (i) Clear all the flags
 (ii) Load OOH in reg. A & show that zero flag is not affected.
 (iii) Logically OR the content of accumulator with itself to set zero flag & display at o/p port I & store all the flag on the stack.
- (b) What is RST? List all RST instructions in detail. 7

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- 4 (a) Draw the block diagram of 8255 A & explain each block in detail. 7
(b) Explain about control word of IC 8255A. 7
OR
- 4 Explain about the following DAC application :
(a) Square wave 7
(b) Triangular wave 7
- 5 Attempt any seven out of twelve : 14
- 1 Give the full form of SAR & os
 - 2 How many comparators required in 4 bit & 5 bit simultaneous A/D converter.
 - 3 How many byte required for CALL instruction?
 - 4 What is BSR?
 - 5 Give the full form of RAR & RRC.
 - 6 What is the use of stack & subroutine?
 - 7 In which mode all port function as simple I/O?
 - 8 LXI D 1234 H require T states & ORA C require T states.
Explain about the following instruction in detail :
 - 9 RPO
 - 10 JMP
 - 11 Calculate time to execute "DC × D" instruction for a system having clock freq. = 4 MHz.
 - 12 Calculate the value of "count" for given equation in hexadecimal :
 $2 \text{ ms} = 17.5 \times 10^{-6} + (7 \times 10^{-6}) \times \text{count}.$
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