TEST 1 SEMESTER I 2016/2017

PART B: 4 SUBJECTIVE QUESTIONS [Total mark 35 points]

Question 1 [12 Marks]

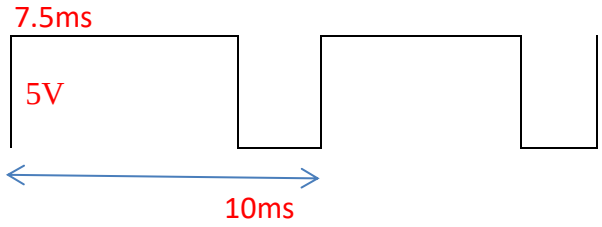
a) Less error, Easy to design, Easy to store

b) A square wave signal is generated with the following characteristics:

i) Calculate the frequency in MHz = 0.0001MHz

ii) Calculate pulse width (t_w) = 7.5ms

iii) Draw the waveform for 20 ms duration and label all the values.



c) List two (2) reasons why designing logic function circuit using Programming Logic Device (PLD) has more advantages compared to fixed IC device. [2m]

- Circuit is design easy since just using software (soft wire approach)
- Circuit is easy to modify
- More circuit can be produced in a very small area in IC
- Design process can be accelerated when programming skill has been improved
- Design cost is cheap

Question 2 [12 Marks]

a) Convert **258.7_{10}** to hexadecimal number. Give your answer in 2 radix points.

$58.7_{10} = 102.B3_{16}$

b) Convert **311.22_4** to its decimal equivalent. Give your answer in 2 radix points.

$311.22_4 = 53.63_{10}$

c) Convert **22.63_8** to its binary equivalent. Give your answer in 5 radix points.

$22.63_8 = 10010.11001_2$

Question 3 [5 Marks]

Refer to the Table 1 (ASCII Table) in the Appendix.

a) Convert characters, **Rs** to ASCII codes in hexadecimal form. **5273**

b) Rewrite the above answer with even parity added. Give the answer in hexadecimal form. **D2F3**

Question 4 [6 Marks]

Perform the arithmetic operation of the decimal numbers, **24 – 10** using 2's complement method. Use 8-bit binary system. Give your answer in decimal.

~~1~~ 0000 1110