K. K. Wagh Polytechnic, Nashik

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Department of Computer Technology

Subject Name and Code - Digital Techniques (313303) **Class**-SYCM- Lin ,Win & Mac

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DTE Practice Questions

Unit -3 – Combinational Logic Circuits

1. Define Multiplexer and State the necessity of multiplexer. (04)
2. Minimize the following expression using K-Map.

   f (A, B, C, D) = Σm (0, 1, 2, 4, 5, 7, 8, 9, 10) . (04)
3. Describe the function of Full Adder Circuit using its truth table, K-Map simplification and with logic diagram.(04)
4. Draw 16:1 MUX tree using 4:1 MUX. (04)
5. Draw 8:1 MUX tree using 4:1 MUX. (04)
6. Draw logic diagram of half adder circuit with it's equation (04)
7. Draw & explain 1:8 DE multiplexer using Block diagram. (04)
8. Convert the following expression into standard SOP form Y = AB + AC + BC (02)
9. Draw & explain in details Half substractor (k-Map , Truth table , Circuit diagram) (04)
10. Compare Multiplexer & Demultiplexer (Any four points) (04)

Unit -4 – Sequential Logic Circuits

1. Compare Combinational & Sequential Circuits (any four points) (04)
2. Define Flip Flop . List it's Types. (02)
3. Explain the concept of 1 Bit Memory Cell in detail. (04)
4. Describe the operation of S –R Flip Flop with truth table & diagrams. (04)
5. What is Race Around condition? How it is avoided? (04)
6. Draw & explain in detail T Flip Flop with truth table & diagrams. (04)
7. Draw & explain in detail D Flip Flop with truth table & diagrams. (04)
8. State types of Shift Registers (02)
9. Draw & Explain Serial in Serial Out Shift Register (SISO) in details (04)
10. Draw & Explain Serial in Parallel out shift Register(SIPO) in details (04)
11. Explain 3 bit Asynchronous counter with output waveforms (04)
12. State different applications of counters. (04)

Unit -5 – Data Converters & Memories

1. List any four specification of DAC (02)
2. Define the Terms Accuracy. Sensitivity ,Settling Time, Stability of DAC (04)
3. Draw & explain Successive Approximation Type ADC Circuit in details (04)
4. Classify different types of Memories. (02)
5. Calculate analog output of 4 bit DAC for digital input 1101 , Assume V_R=4 V (04)
6. Explain concept of SSD Memory in detail (04)
7. Compare Volatile & Non-volatile types of memory (04)
8. Compare SRAM & DRAM (Any four points) (04)

M. N. Jadhav & P. J. Suslade

Subject Teacher