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SEAT No. \_\_\_\_\_

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**SARDARPATEL UNIVERSITY, V.V.NAGAR**

T.YB.Sc. Sem-V EXAMINATION

SUB. CODE:-US05CELE02

Digital Systems

DATE:-09/11/2017, Thursday TIME:-10:00 am to 01:00 pm

MARKS-70

**Q-1 Choose correct answer****[10]**

1. A serial-in-serial-out shift register can also work as \_\_\_\_\_  
 (A) Serial in Parallel Out (C) Parallel in Parallel Out  
 (B) Parallel in Serial Out (D) None of these
2. In bidirectional register data can be shifted from left to right and right to \_\_\_\_\_  
 (A) Left (C) Right  
 (B) Up (D) None of these
3. Carry generate function CG = \_\_\_\_\_  
 (A)  $A \cdot B$  (C)  $A + B$   
 (B)  $A - B$  (D) None of these
4. Low speed modem uses \_\_\_\_\_ modulation.  
 (A) FSK (C) AM  
 (B) AM-FM (D) None of these
5. Registers are made up of \_\_\_\_\_  
 (A) Flip-Flops (C) Resistors  
 (B) Capacitor (D) None of these
6. PAL means \_\_\_\_\_  
 (A) Programmable Array Logic (C) Program Access Memory  
 (B) Programmable Alternate Loop (D) None of these
7. In ring counter data is \_\_\_\_\_  
 (A) Circulated (C) Shift-out  
 (B) Shifted in (D) None of these
8. The carry propagate function mean \_\_\_\_\_  
 (A)  $A+B$  (C)  $A - B$   
 (B)  $A \cdot B$  (D) None of these
9. \_\_\_\_\_ is a basic comparator.  
 (A) X-NOR (C) AND  
 (B) XOR (D) None of these
10. The Schmitt Trigger has U.T.P. & \_\_\_\_\_  
 (A) LTP (C) Zero-Pt  
 (B) NO Pt (D) None of these

**Q-2 Short answer type question. (any ten)****[20]**

1. Draw the logic diagram of 4-Bit Parallel-in-Parallel-out simple shift register.
2. Explain UART Drawing Diagram
3. Draw the logic symbol of 74LS83 and label each pin.
4. Draw the logic diagram of 4 bit serial-in-parallel-out simple shift register.
5. Draw the logic diagram of 4 bit serial-in-serial-out simple shift register.
6. Draw the logic diagram of 4 Stage Simple Ring Counter.
7. Draw the logic diagram of 4 Stage Johnson Counter.
8. Draw a neat logic diagram of full Adder Circuit that produces CG & CP Functions.
9. Draw a neat block diagram of Serial Adder and explain in short.
10. Explain FSK Drawing Diagram.
11. Draw the block diagram of digital data transmission using MODEM.
12. Draw the figure of asynchronous data format.

Q.3 List different types of data transmission in shift register and explain its working in detail drawing diagram. [10]

OR

Q.3 Draw the neat logic diagram of 4-bit controlled buffer register and explain its working in detail. [10]

Q.4 Give an account of 4-bit Bidirectional register and explain its working in detail. [10]

OR

Q.4 List applications of shift register and explain any two in detail. [10]

Q.5 Explain TWO's complements addition and subtraction using parallel adders. [10]

OR

Q.5 Give an account of comparator. [10]

Q.6 Give an account of CMOS-TO-TTL interfacing & Explain in brief TTL-TO-CMOS interfacing. [10]

OR

Q.6 Give an account of Schmitt Trigger as an Interface Circuit. [10]

