Roll No. **No. of Pages :**

PSG POLYTECHNIC COLLEGE, COIMBATORE - 641 004

DIPLOMA EVEN SEMESTER EXAMINATIONS –APRIL 2014

E12403 DIGITAL ELECTRONICS

MODEL QUESTION PAPER

Time : 3 Hours **Max.Marks: 100**

Instructions:

1. **Group A** and **Group B** questions should be answered in the Main Answer book.
2. Answer any **TEN** questions in **Group A**. Each question carries two marks.
3. Answer **ALL** questions either **(a)** subdivision or **(b)** subdivision in **Group B**. Each question carries 14 marks.

Group – A **Marks: 10 x 3 = 30**

1. Write the advantages of digital system over analog system.
2. Perform the following conversions:
   (i) Decimal number 5789 to Hexadecimal, Octal numbers.
   (ii) 1132 octal number to Decimal, Hexadecimal numbers.
3. What are characteristics of TTL?
4. What is an ASCII code? Give an example.
5. Draw Encoders and Decoders block diagram. What are their applications?
6. Draw a seven segment Decoder diagram
7. What is a parity bit? Give applications of parity bit.
8. Define Half adder and Full adder.
9. What is a Scmitt trigger?
10. Define Flip-Flop. What is the principle of SR Flip-Flop?
11. Convert the following Flip Flops (a) SR to JK (b)JK to T (c)JK to D
12. What are counters and Registers? Mention their applications.
13. Define ADC. What are the types of ADC?
14. In a 8 bit DAC, the weight of LSB is 0.010V.What is the voltage for the following words?
    (a)1111 1111 (b)1001 1001
15. What is a R-2R ladder network? Draw its diagram.

Group– B **Marks: 5 x 14 = 70**

16. a) i) State and explain De-Morgans theorems. (5)
    ii) What are Universal Gates? Explain why it is called so. (9)

(OR)

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b) i) Using K-Map simplify f(A,B,C)=Σ0,1,2,3,5 . (5)
ii) Using K-Map simplify f(A,B,C,D)=Σ 2,5,7,11,13,15. (9)

17.a) i) What is a Multiplexer? With a diagram explain it. (5)
ii) What is a De-Multiplexer? With a diagram explain it. (9)
(OR)
b) i) With a diagram explain the operation of a BCD to decimal decoder. (5)
ii) With a diagram explain a decimal to BCD Encoder. (9)

18.a) i) Explain the operation of a 4 bit parallel adder. (5)
ii) Explain the operation of a 4 bit parallel subtractor. (9)
(OR)
b) i) Draw and explain an Odd parity Generator. (5)
ii) Explain the operation of a Digital Magnitude Comparator. (9)

19. a) i) Draw a 3 bit binary ripple counter and explain its operation. (5)
ii) Draw a Decade counter and explain it. (9)
(OR)
b) i) Draw a Serial in Serial out register and explain. (5)
ii) Draw a Parallel in-Serial out register and explain. (9)

20 a) i) Define accuracy and resolution. (5)
ii) Draw a 3 bit Flash type ADC and explain. (9)
(OR)
b) i) What is a weighted resistor network? Explain. (5)
ii) Draw a DAC and explain its operation. (9)

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