



RF-3903

**M. Sc. (Tech.) (Part-I) Examination**  
**April / May – 2010**  
**Instrumentation : Paper - II**  
*(General Electronics & Microprocessor)*

Time : 2 Hours]

[Total Marks : 53

**Instructions :**

(1)

नीचे दृष्टावेक निशानीवाणी विगतो उत्तरवही पर अवश्य कपवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<b>M. SC. (TECH.) (PART-1)</b>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<b>INSTRUMENTATION - 2</b>	<input type="text"/>
Subject Code No. : <input type="text" value="3"/> <input type="text" value="9"/> <input type="text" value="0"/> <input type="text" value="1"/>	<input type="text"/>
Section No. (1, 2,.....) : <input type="text" value="NIL"/>	
Student's Signature	

- (2) All questions are compulsory.  
(3) Figures to the right indicate full marks.  
(4) Assume the data, if required.

- 1 (a) Define: Logic gate, Decoder (2)  
(b) Explain zener diode as a voltage regulator. (2)  
(c) Convert  $1111_2 = \underline{\hspace{2cm}}_{10}$  (2)  
(d) Microprocessor 8085 based system can address maximum memory locations. (2)  
(e) MOV M, Rg is \_\_\_\_\_ byte instruction consumes \_\_\_\_\_ T-states. (2)  
(f) Explain following instructions with suitable examples. (3)  
(1) XCHG (2) RRC (3) LHLD
- 2 (a) Discuss the counter method for A/D converter. (4)  
(b) Explain shift left register. (2)  
(c) Discuss the general characteristics of negative feedback amplifiers. (4)

**OR**

- 2 (a) Discuss Binary Ladder D/A converter in detail. (4)  
(b) Write a note on XOR gate. (2)  
(c) Reduce to POS form and implement in NOR logic  
 $Y = \Sigma m(0, 2, 4, 6, 10, 11, 12, 14, 15)$  (4)
- 3 (a) Discuss JK flip flop with circuit diagram and timing diagram. (4)  
(b) Discuss the advantages of the negative feedback. (2)  
(c) Discuss the applications of ROM. (4)

**OR**

- 3 (a) Explain the Ripple counter with circuit and timing diagrams in details. (4)  
 (b) Write a note on encoder. (2)  
 (c) Reduce:  $\overline{\overline{A \overline{B}} + ABC + A(B + A \overline{B})}$  (4)
- 4 (a) Draw complete functional block diagram of 8085. (5)  
 (b) What is stack and its significance? Explain with the help of suitable example. (3)  
 (c) Explain the function of following pins of 8085.  
 (1) RESETIN (2) HOLD (2)

**OR**

- 4 (a) Draw timing diagram of Op-code fetch machine cycle showing all necessary signals. (6)  
 (b) Explain what is loop in loop technique in reference to design of 1 msec delay routine. (4)
- 5 (a) Write a program to separate out positive numbers and negative numbers from 20 numbers stored from 2100h. Store positive and negative nos. from 2200h and 2300h respectively. (4)  
 (b) Draw and explain the block diagram of 8255. (4)  
 (c) Write a difference between Jump and Call instructions with suitable examples. (2)

**OR**

- 5 (a) Write a program to generate square wave of 1kHz frequency using simple delay routine. Show delay calculation. (4)  
 (b) Explain different types of memory with their suitable applications. (4)  
 (c) Explain various types of addressing modes with suitable example. (2)