

**Dr.M.G.R**  
**Educational and Research Institute**  
**University**

**Department of Electronics and Communication Engineering**  
**Model Question Paper**

**Entrance Examination for Ph.D Admission(March 2012)**

**PART - A**

**(10 X 1 = 10) MARKS**

**ANSWER ALL THE QUESTIONS**

1. Reciprocity Theorem is used in Antennas. True/False.
2. The expression for Phase modulated wave is \_\_\_\_\_
3. 8085 processor has \_\_\_\_\_ flags.  
(a)4 (b)6 (c) 5
4. Specify True (or) False: Lyapunov Stability criterion can be applied to nonlinear systems stability check.
5. Cross over distortion occurs in \_\_\_\_\_ power amplifier.  
(a) Class A (b) Class AB (c) Class C
6. The expression for forward bias current in a PN diode is \_\_\_\_\_.
7. The maximum addressing capacity of 8086 processor is \_\_\_\_\_.
8. For a discrete system to be stable all the poles should lie \_\_\_\_\_ the unit circle.  
(a)outside (b) inside (c) on
9. The sampling frequency for a 4kHz signal as per Sampling theorem is \_\_\_\_\_.
10. Implement a 2 input RTL NOR gate.

**PART - B**

**(6 x 5 = 30) MARKS**

**ANSWER Any six QUESTIONS**

1. Draw the circuit of a 2<sup>nd</sup> order High pass filter using Op. Amp.
2. The impulse response of a system is  $h(t) = u(t)$  Check the stability of the system for an impulse input.
3. Mention the important blocks of a multirate sampling system.
4. An 8085 program is given below. Specify the T states required for the different instructions specified.

```
STA 3200H
ADD B
MOV B, A
RLC
RLC
ADD B
RRC
```

5. Compare the transmitter power required for (i) AM (ii) AMDSB and (iii) AMSSB
6. In the context of Embedded Systems explain briefly (i) Deadlock (ii) Unrolling and (iii) Process

7. Write a VHDL program to implement a Gray to Binary Code converter.
8. Implement a 2:1 multiplexer circuit using CMOS transmission gates alone.
9. Design a 3 bit up counter using JK flip flops.
10. Explain with an example the following statement “uncorrelated random process does not imply that they are independent, however, if two random processes are independent then they are uncorrelated.
11. What is a Macro? Write a MACRO to implement a NOR gate function for an 8-bit processor.
12. Write a 'C' program to print the factorial of a given no.?