

**FINAL TERM EXAMINATION
SEMESTER (Fall 2004)
PHY-301 CIRCUIT THEORY**

**Total Marks: 50
Duration: 120min**

Student ID/Login ID	
Name	
PVC Name/Code	
Exam Center	
Date	11-02-2005

Maximum Time Allowed: (2 Hour)

Instructions

Please read the following instructions carefully bM

CQ carries 1 Marks .

- c. While attempting descriptive question do not miss any step so that you could get better marks.
- d. Do not ask about the contents of any question of this examination from anyone.
- e. If you think that there is something wrong with any of the questions, attempt it to the best of your understanding.
- g. On the other hand, if you believe that all of the choices provided for a particular question are the wrong ones, select the one that appears to you as being the least wrong.
- h. The duration of this examination is 120 minutes.

i. This examination is closed book, closed notes, closed neighbors.

j. Do not ask any questions about the contents of this examination from anyone.

k. Draw Circuit diagrams (where necessary) for each step.

****WARNING: Please note that Virtual University takes serious note of unfair means. Anyone found involved in cheating will be given grade 'F' in this course.**

For Teacher's use only

Question	Q1	Q2	Q3	Q4	Q5	Total	Signature
Marks							

Question No: 1

Marks: 5

For each question given below, encircle the option that in your opinion represents the best/ correct answer.

I) Choose the correct term, an electronic device that is capable of storing a charge for a long time.

- a) Transistor
- b) Semi-conductor
- c) Capacitor
- d) Diode

II) The unit of electrical potential difference is

- a) watt
- b) Volt
- c) ohm
- d) ampere

III) Resistances R1 and R2 are in series with 90 V applied. If V1 is 30 V then V2 must be

- a) 30 V
- b) 90 V
- c) 45 V
- d) 60 V

IV) In an N –type semiconductor materials, the majority carrier are

- a) Holes
- b) Electrons
- c) Ions
- d) Protons

V) When a current of 20 milliamps flows through a 50 ohm resistor the voltage drop across the resistor will be:

- a) 100 mill volts
- b) 10 mill volts
- c) 1 volt
- d) 10 volts

Question No: 2

Marks: 15

Use Mesh analysis to find currents through all Meshes. Label circuit diagram properly. Write each step of calculation to get maximum marks.

Question No: 3

Marks: 12

Find V_o in the network using Source Transformation. Draw and label the circuit diagram of each step, otherwise lose your marks. Write each step of calculation to get maximum marks.

Question No: 4

Marks: 10

- a) How does transistor work?
- b) What is PN-junction diode.

Question No: 5

Marks: 8

The transistor in the circuit below has a very high β . Find V_E and V_C for V_B (a) +6V, (b) +2V, and (c) 0V. Assume $V_{BE} \cong 0.7 \text{ V}$.