	FINALTERM EXAMINATION	
	SPRING 2006	Marks: 60
	PHY301 - CIRCUIT THEORY (Session - 1)	Time: 120min

StudentID/LoginID: _____

Student Name: _____

Center Name/Code: _____

Exam Date: Saturday, August 19, 2006

Instructions

Please read the following instructions carefully before attempting any question:

All questions are compulsory.

- **This exam consists of One Multiple Choice Questions (MCQ's) ,which carries 10 Marks and four descriptive questions.**

- **While attempting descriptive question do not miss any step so that you could get better marks.**

- **Do not ask about the contents of any question of this examination from anyone.**

- **This examination is closed book, closed notes and closed neighbors.**

- **Do not ask any question about the contents of this examination from anyone.**

- **Draw Circuit diagrams (where necessary) for each step to get maximum score in the exam.**

**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	1	2	3	4	5	6	7	8	9	10	Total
Marks											
Question	11	12	13	14							

Marks												

Question No: 1   (Marks: 1)   - Please choose one

Superposition theorem can be applied only to circuit having ……..

▶ Non-linear

▶ Passive

▶ Linear bilateral

▶ Resistive

Question No: 2   (Marks: 1)   - Please choose one

The output of a half wave rectifier is suitable only

▶ Running car diodes

▶ Charging

▶ Diode rating

▶ Purity of power output

Question No: 3   (Marks: 1)   - Please choose one

While calculating R_{th} current sources in the circuit are

▶ Replaced by

▶ Replaced indirect voltage

▶ Replaced by short

▶ Replaced DC voltage

Question No: 4   (Marks: 1)   - Please choose one

In parallel circuits all components

▶ have the same
value

▶ have same potential

▶ carry the same

▶ be switched ON & OFF simultaneously

Question No: 5   (Marks: 1)   - Please choose one

The clipping level is primarily determined by

▶ shape of the input

▶ value of the resistor

▶ battery

▶ knee voltage of the

Question No: 6   (Marks: 1)   - Please choose one

The depletion region of a P-N junction is

▶ During the manufacturing

▶ When forward bias is applied to it

▶ Under reverse bias

▶ When its temperature is

Question No: 7   (Marks: 1)   - Please choose one

The dc load line of a transistor can be drawn if we know its cut off and …….

▶ active

▶ saturation

▶ quiescent

▶ None of them

Question No: 8   (Marks: 1)   - Please choose one

The filter is simply a capacitor connected in ----------- with the load

▶ series

▶ parallel

▶ we can use it in series as well as in parallel

▶ none of

Question No: 9   (Marks: 1)   - Please choose one

Zener diode is operated in the …….. Region

▶ cut-off

▶ forward

▶ breakdow

▶ saturation

Question No: 10   (Marks: 1)   - Please choose one

A tunnel diode is always biased

▶ By dc source

▶ In the reverse direction

▶   In the middle of its negative resistance region

▶   None of them

Question No: 11   (Marks: 15)

Use nodal analysis to find out the power supplied by current source in the network given
Identify and label each node otherwise you will lose your marks. Write each step of the
to get maximum marks and also mention the units of each derived

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Question No: 12   (Marks: 10)

Find V_O in the network given below using **Thevenin's**   .
Show each step of calculation otherwise you will lose your marks. Draw and label the
diagram of each step and also mention the units of each derived

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Question No: 13   (Marks: 10)

Find I_O in the network given below using **Norton's**   .
Show each step of calculation otherwise you will lose your marks. Draw and label the
diagram of each step and also mention the units of each derived

Question No: 14   (Marks: 15)

(a) Measurement on the circuit below produces labeled voltages as indicated. Find the value β for the given circuit. **Marks=6**

(b) For the circuit shown in the figure below, find the emitter, base, and collector voltages currents. Use β☒ **32,** but assume|**V**_{*BE*}| **= 0.7V** independent of current level.
Marks: 9

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