NED UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI
FIRST YEAR (COMPUTER SCIENCE AND INFORMATION TECHNOLOGY)
ANNUAL EXAMINATION 2007
BATCH 2006-07

Time: 3 Hours **Dated: 03-11-2007**
Max. Marks: 80

BASIC ELECTRONICS – (EL-134)

INSTRUCTION:

- **Attempt five question,Qs.1 is compulsory ,attempt one question from section A, two from section B &one from sectionC**
- **Draw sketches/diagram wherever necessary.**
- **Take approximate values wherever required**

Q1 Objectives [10]

1. Gold is a _____.
   - Conductor
   - Semiconductor
   - Insulator.
2. Crystal with pentavalent impurity is _____.
   - P type
   - N type
3. A diode has a voltage of 0.7 V &current of 50 mA .What is diode power?
   - 35 mWatt
   - 71 mWatt
4. Common base is preferably used in _____..
   - Positive feed back
   - Negative feed back.
5. The method of coupling that uses least no. of circuit elements _____.

6. _____ coupling is very often used for final output (between final amplifier stage & output device).

7. For n-channel fet VGS &Vt is _____.

- Positive
- Negative.

8. _____region is thin in BJT.

- Collector
- Emitter
- Base

9.MOS is _____controlled device.

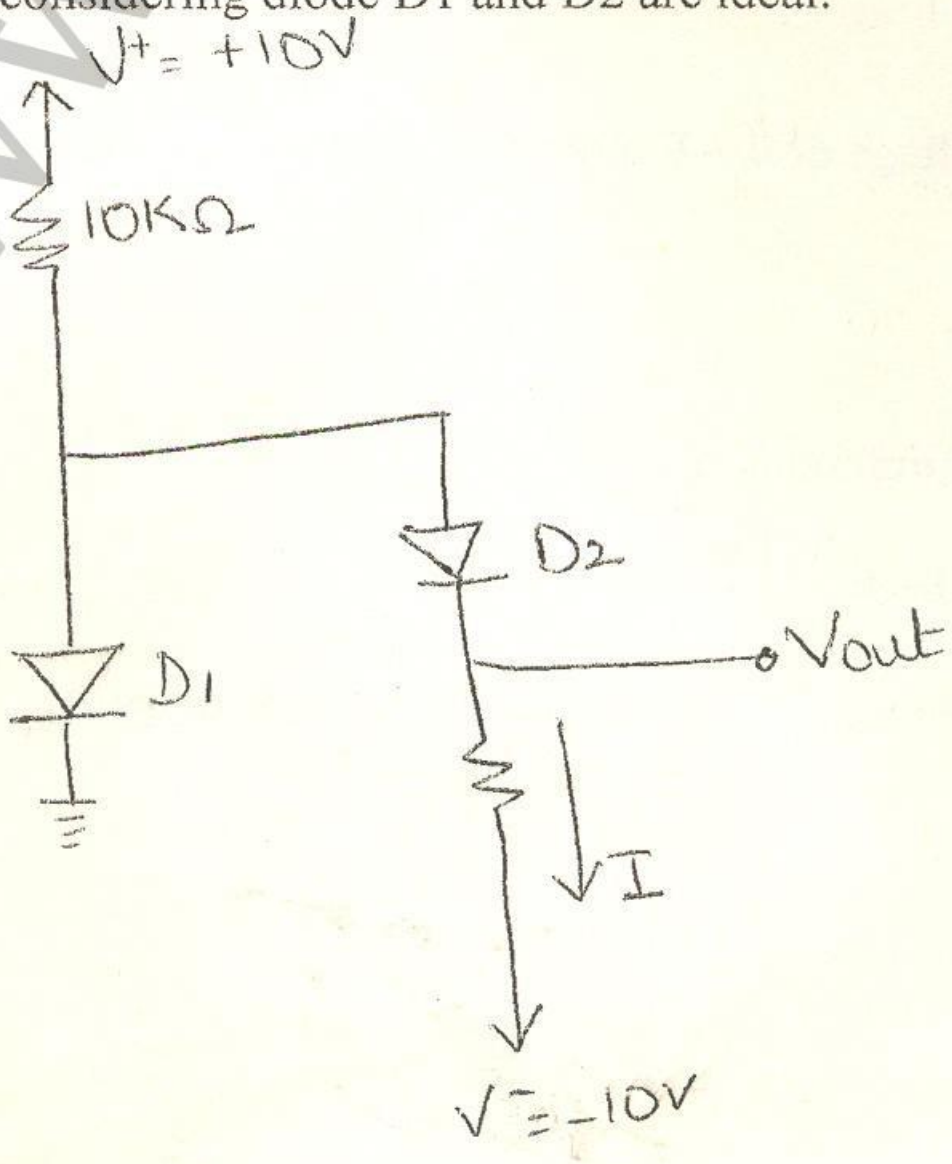
10. MOS is better than BJT because of _____

- Cost
- Power dissipation
- Gain
- Both a&b.

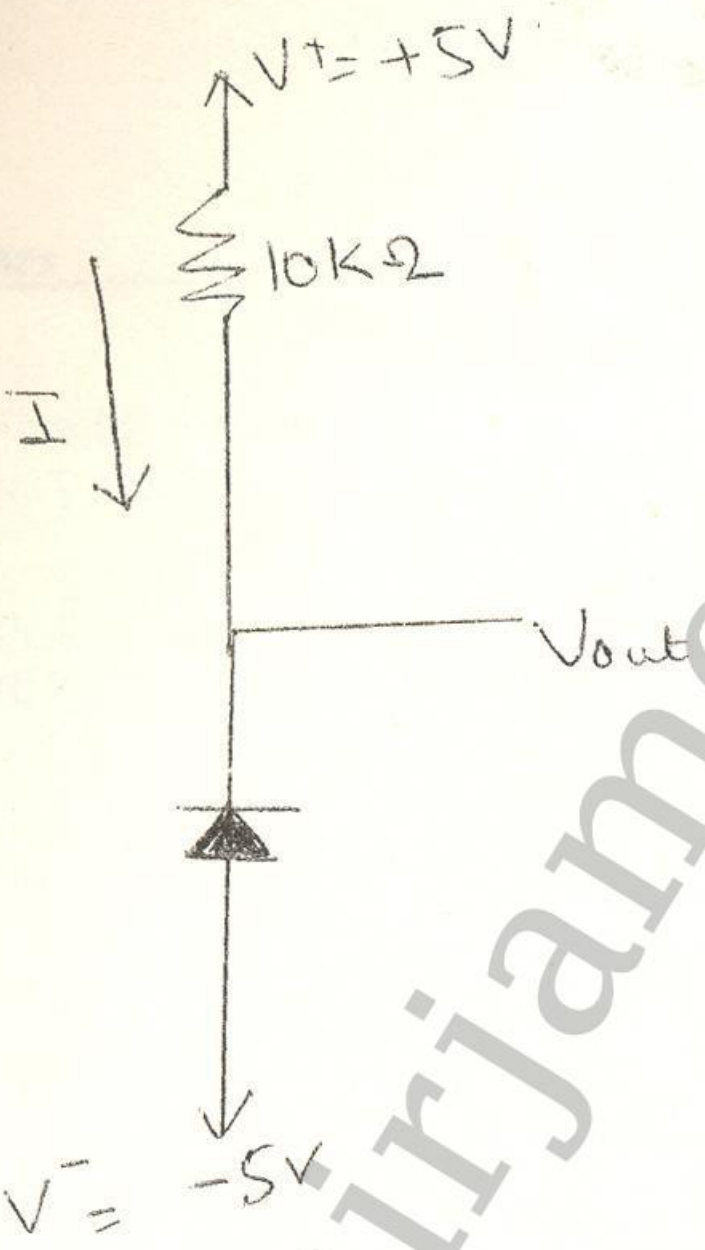
Q1b.Explain ID-VDS curve with each region of operation. [6]

Section A

Q2a. Find I and Vout ,considering diode D1 and D2 are ideal. [8]



Q2b.define donor and acceptor impurities.,doping,depletion width [8]
Q3 a Define drift and diffusion. [6]
Q3 b. Find current I and voltage output through ideal and practical diode. [10]



Section B

Q4a. What is the purpose of using a coil in impedance coupling instead of using resistor. [8]
Q4b Compare the MOS with BJT [8]

Q5a.Draw a diagram of positive feed back in two stages of transistor amplifier [10]
Q5bDefine coupling , oscillator. [6]

Q6a.write down the equations for NMOS transistor [06]

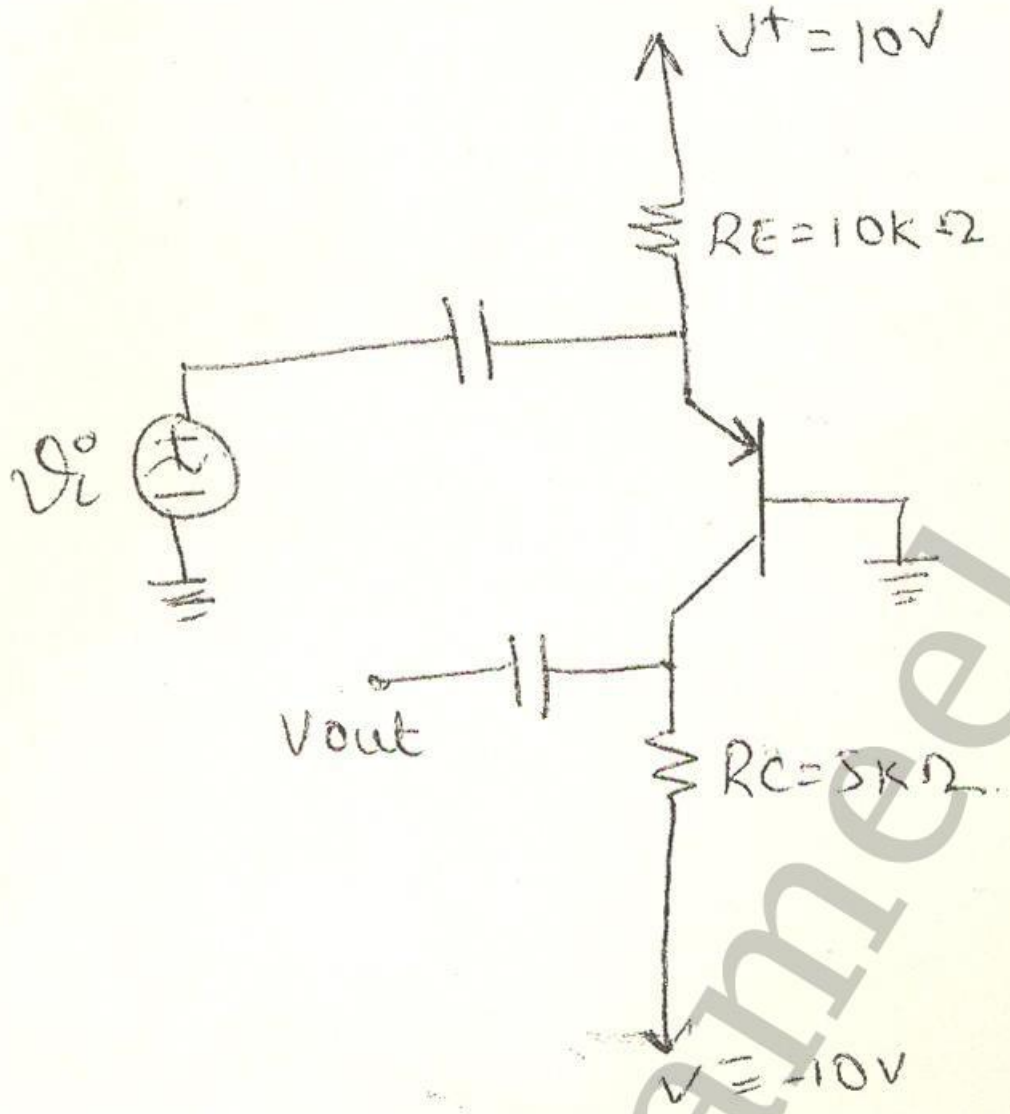
- Induced channel
- Saturation mode
- Triode mode.

Q6b. An enhancement type NMOS transistor with Vt = 2V induces a current of iD=1mA, When VGS=VDS=3V neglecting the dependence of iD and VDS in saturation .find the value of iD forVGS= 4V&VDS=5V .Also calculate the value of drain to source resistance rDS for small VDS &VGS=4V. [10]

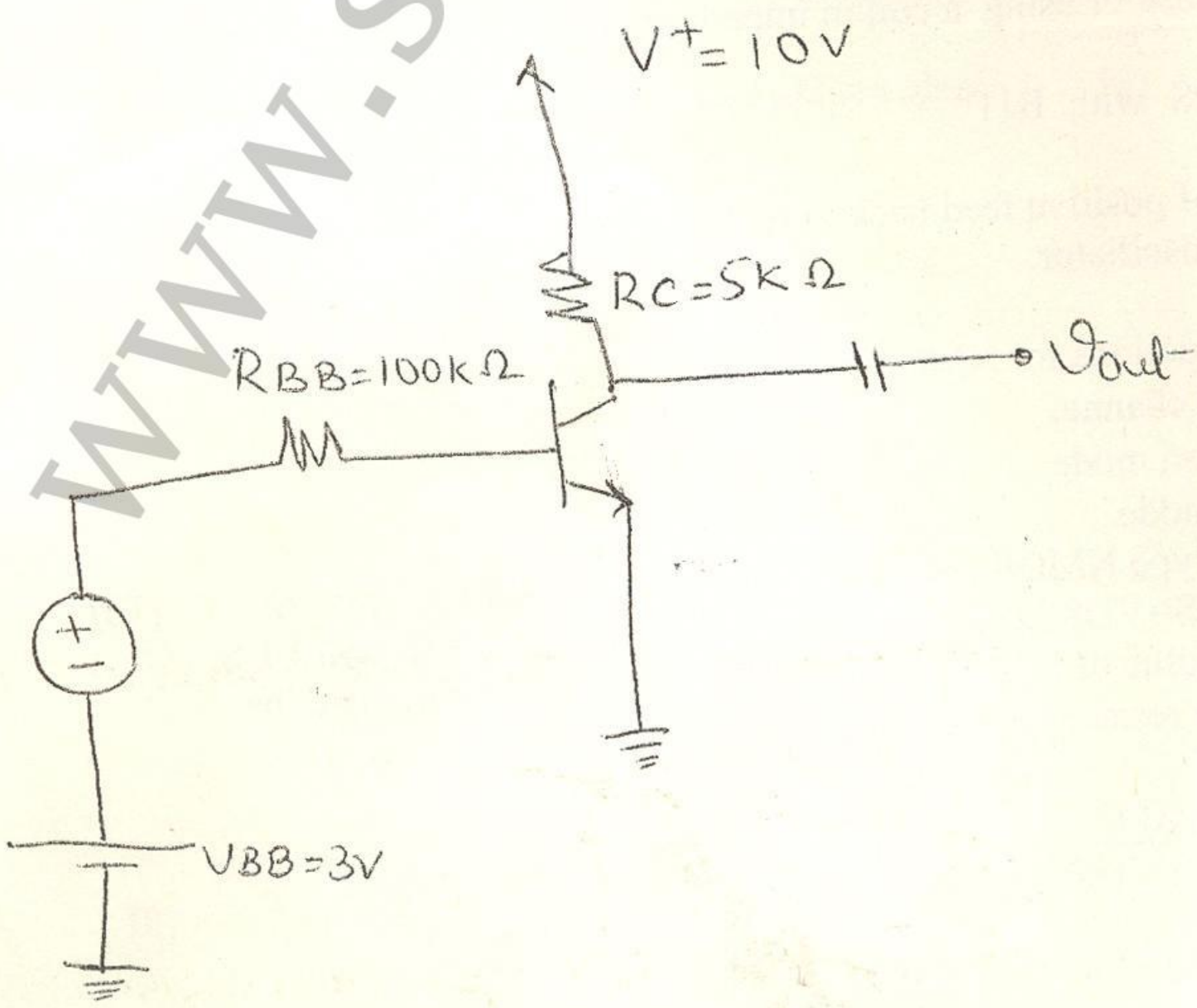
Section C

Q7a.Derive the formula for Transconductance of BJT. [8]

Q7b.Do the Dc analysis of the circuit (currents and voltages) [8]



Q8.Find out the voltage gain of the amplifier [16]



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