MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2015/2016

FIRST YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE

MAIN CAMPUS

CCT 115: ENGINEERING DRAWING

Date: 18th January, 2016   Time: 11.00 - 1.00pm

INSTRUCTIONS:

- **Answer Question ONE and any other TWO Questions**
- **Diagrams, where required should be clearly drawn and labeled.**
- **Mobile phones are strictly forbidden in this exam.**

Question One (Compulsory 30marks)

a) What is graphic communication? — 2marks
b) Discuss the two basic types of drawing. — 4marks
c) Explain the Purpose of Technical drawing. — 4marks
d) Explain the different application of technical drawing — 6marks
e) Define a Title Block and give some of its features? — 5marks
f) Define projection — 3marks
g) The two broad types of projections, both with several sub classifications, are parallel projection and perspective projection. Discuss. — 6marks
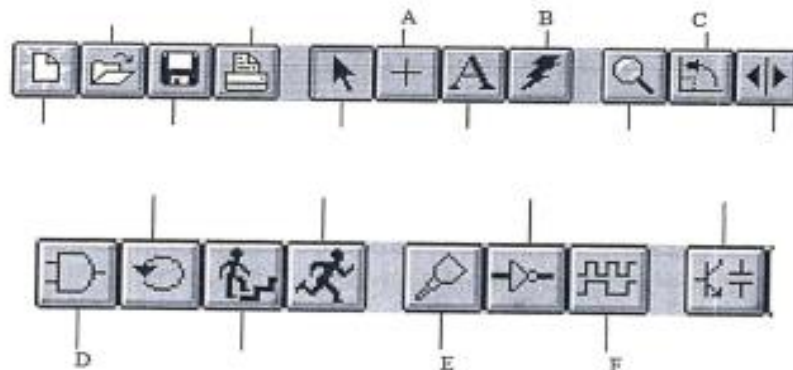
Question Two (20 marks)

a) Mention any eight main drawing equipments — 4marks
b) Explain the use of the different drawing equipments mentioned above — 8marks
c) Discuss the different type of pencils with their use — 4marks
d) Explain the purpose and theory of multi view projections — 4marks

Question Three (20 marks)

a) Define Orthographic projection. Describe "Glass box method" of orthographic first and third angle projections based on the technical drawing procedure. — 10marks
b) Discuss the purpose of dimensioning — 4marks
c) Explain the difference among dimension line, extension line and leaders — 6marks
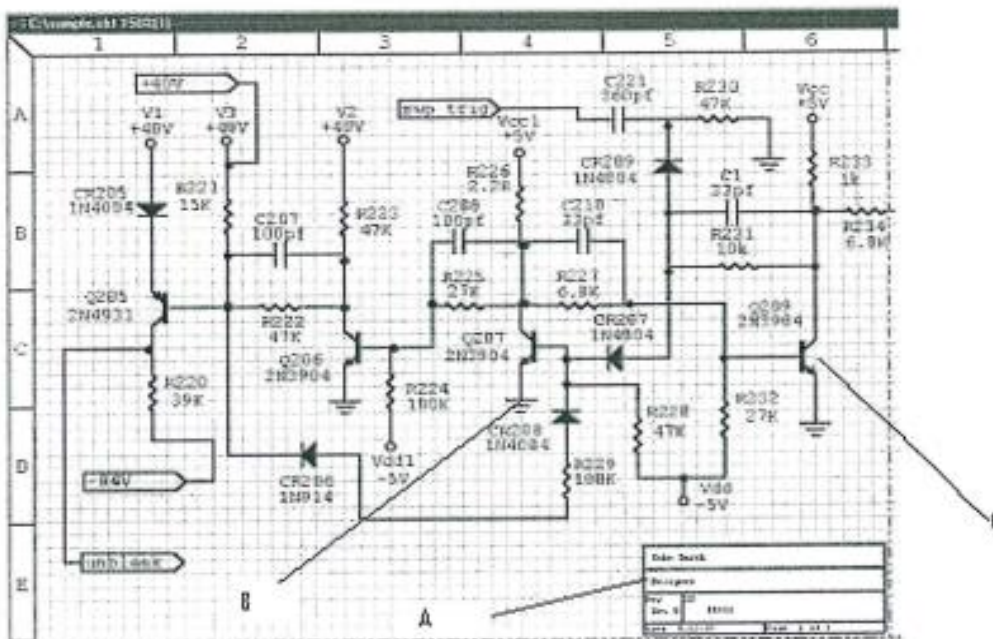
Question Four (20 marks)

a) The figure below shows part of circuit maker toolbar. Identify and briefly describe the function of tool A, B, C, D, E and F on the Toolbar shown. — 6marks

b) Circuit Maker is a computer aided software that is used for schematic drawing and simulation of digital and analog electronic circuits. What do you understand by the terms: — 4marks

   i. Schematic Drawing
   ii. Simulation of electronic circuits.
   iii. Digital circuits
   iv. Analog circuits

c) Why do you think it is always necessary to simulate electronic circuits first before transferring the design to a real Print Circuit Board (PCB)? 4marks

d) Name any possible four features found in part A. State the significance of each feature. 4marks
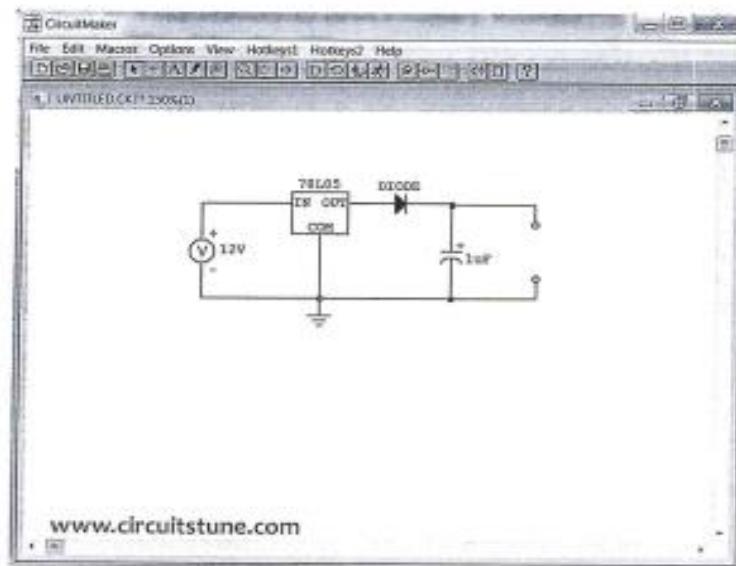
Question Five (20 marks)

a) Identify and explain the function of the circuit maker CAD software buttons marked A,B,C,D.

4marks

b) The figure below is a12V to 5V dc-dc converter circuit diagram. Explain how you would design and simulate the circuit schematic in Circuit Maker.

6marks

c) Fill in the truth-table for all the gates listed below. Create a circuit using CircuitMaker for one of these gates to determine its truth table experimentally so as to see that it agrees with what you had filled out on the truth-table. Those gates with the letter n in them (NAND, NOR,XNOR)

have a NOT gate(inverter) on their output. For example a NAND gate is an AND gate with a NOT on its output.   10marks

p	q	p and q	p or q	p nand q	p nor q	p xor q	p xnor q
0	0						
0	1						
1	0						
1	1						