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M. Sc
MSEC 3503

5th Semester Examination (2012 Syllabus): Oct-Nov 2015

ADVANCED ELECTRONICS

Full Marks: 60 **Time: 3 Hrs.**

Answer Question No.1 which is compulsory and any Five from the rest.

The figure in the right hand margin indicates marks.

PART – A **[10x1.5=15]**

1. a) What is small in small signal modeling? How does a fixed biased resistor affect the input impedance of a CE amplifier?
   b) Which h-parameters can be determined from the input and output characteristics of a BJT? .
   c) Explain how a Schmitt trigger converts a sine wave into a square wave.
   d) Differentiate between DMOSFET and EMOSFET.
   e) Design a second order high pass active filter.
   f) What do you mean by unsymmetrical triggering? Where is it used?
   g) Given $\beta=120, r_e= 4.5\Omega$ and $r_0=40k\Omega$, sketch the approximate hybrid equivalent circuit.
   h) Find the period of output and the frequency of oscillation of an astable multivibrator with $R_1=R_2=25\ k\Omega$ and $C_1=C_2=0.2\ \mu F$.
   i) Enumerate the interrupt signals of a 8085 microprocessor.
   j) What kind of I/O mapping scheme is used by 8085 microprocessor?

PART – B **[5x9=45]**

2. For the emitter-follower network, determine r_e, Z_i, Z_0, A_v and A_i. Given $\beta=100, r_o=25k\Omega$. [9]