CODE NO:- K-8014
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E.(Electrical Power Systems) Examination Nov/Dec 2015
Advanced Power Electronics
(Revised)

[Time: Three Hours]   [Max. Marks: 80]

"Please check whether you have got the right question paper."
N.B   i) Solve any two questions from each section
                                     ii)Use suitable data if required.

SECTION-A

Q.1   a)   State the various types of turn on methods of SCR .which is the universal method & why?   10
       b)   Discuss the switching characteristics of IGBT with the help of neat circuit diagrams & waveforms.   10

Q.2   a)   Show that the performance of a three phase full converter as influenced by source inductance is given by the   10
             relation: $\cos(\alpha + \mu) = cos\alpha - \frac{wL_sId}{E_m}$
             Were
             α is the firing angle μ – overlap angle
             L_s- source inductance   Id – load current
             E_m – peak value of source voltage
             w–angular freq. (rad/sec)

       b)   A angle phase full converter supplies an inductive load. Supply voltage is 230v, 50Hz & the firing angle is 50^0.   10
             Assuming that the output current is continuous & ripple free & equal to 15amp. Determine
             i)   Average output volt
             ii)   Input power factor

Q.3   Write short notes (any two)   20
       i)   Principle of operation CUK converter
       ii)   Dual converter
       iii)   Operating principle of GTO.

SECTION-B

Q.4   With the help of neat circuit diagram & waveform explain the operation of transistorized tree phase bridge inverter with   20
       resistance load in 180^0 conduction mode.

Q.5   a)   What is pulse width modulation? List the various pwm techniques. Explain any one of them.   10
       b)   Draw & explain the various types of zero current switch topology.   10

Q.6   a)   Explain with neat circuit diagram & waveform the operation of full bridge zvs pwm converter   10
       b)   Write a short note on parallel resonant converter source   10