

SUBJECT CODE NO:- P-8164
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E.(Electrical Power Systems) Examination MAY/JUNE-2016
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) Draw the electrical equivalent circuit of a power MOSFET and discuss gate drive considerations of MOSFET. 10
- b) State and explain the sources and power losses in switching MOSFET. 10
- Q.2 a) With the help of circuit diagram and associated waveforms explain the operation of 1 – phase fully controlled bridge converter. 10
- b) A single phase fully controlled bridge converter is given 230V, 50Hz supply. The firing angle is 45° and the load is highly inductive. Determine 10
- i. Average output voltage
 - ii. Power factor
- Q.3 Write short notes (any two) 20
- i. Effect of source inductance on performance of AC-DC converter.
 - ii. Methods of power factor improvements in controlled rectifiers.
 - iii. Principle of operation of boost converter.

Section B

- Q.4 a) Explain the operation of single phase full bridge inverter if RL load connected. 10
- b) What is PWM? What are the various PWM techniques used for voltage control in inverter? State the advantages of PWM. 10
- Q.5 a) What is resonant converter? Explain the operation of parallel resonant converter. 10
- b) Explain the operation of ZVS resonant converter. 10
- Q.6 Write short notes. (any two) 20
- i. Working principle of single phase CSI.
 - ii. Principle operation of buck converter.
 - iii. Operation of resonant DC link inverter.