



R22 Regulation

Subject code: E122PC1

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

M.Tech II Semester Supplementary Examinations, March 2024

ADVANCED POWER ELECTRONIC CONVERTERS-II

(Power Electronics)

Maximum Marks: 60

Date: 05.03.2024 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10X1M=10 Marks)

- 1.a) What is a DC-DC converter?
- b) What is the principle of operation of a Step-down converter?
- c) What is the principle of operation of a Cuk regulators?
- d) What is the function of Fly back Converter?
- e) What is the class-E resonant inverter?
- f) What are the advantages of ZCS converters?
- g) What are the limitations of ZVS converters?
- h) What are the applications of resonant converters?
- i) What is a Matrix Converter?
- j) What is a power conditioner?

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 2 Explain Analysis of step – down and step-up DC to DC converters with RL-load. [10M]
OR
- 3 What are the advantages and disadvantages of a Buck-Boost regulator? [10M]
- 4 What are the advantages and disadvantages of switched-mode-power supplies? [10M]
OR
- 5 What are the applications of the Fly back Converter, Forward converter & Push-pull converters? [10M]
- 6 A. What are the advantages of parallel-resonant inverters? [5M]
B. What is the principle of series resonant inverters? [5M]
OR
- 7 What is the principle of operation of Resonant pulse inverters? Explain with neat sketch's. [10M]
- 8 A. What is the principle of zero-current-switching (ZCS) resonant converters? Explain with neat sketch. [5M]

B. What is the principle of zero-voltage-switching (ZVS) resonant converters? Explain with neat sketch. [5M]

OR

9 Explain the Comparison between ZCS and ZVS resonant converters. [10M]

10 A. What are the different types of power line disturbances? Explain. [5M]

B. Explain the Applications of the Power conditioners. [5M]

OR

11 A. Explain the Principle of operation of SEPIC converter. [5M]

B. Explain the Principle of operation of LuoConverter. [5M]