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 2025

ADVANCED POWER ELECTRONIC CONVERTERS-II

(Power Electronics)

Maximum Marks: 60 Date:11.03.2025 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 Cuk 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 What is the principle of zero-current-switching (ZCS) resonant converters? Explain with neat sketch. (10M)

OR