ADAMAS UNIVERSITY PURSUE EXCELLENCE	**ADAMAS UNIVERSITY** **END-SEMESTER EXAMINATION : MAY 2021** (Academic Session: 2020 – 21)		
Name of the Program: (Example: B. Sc./BBA/MA/B.Tech.)	B.Tech	**Semester:** (I/III/ V/ VII/IX)	VIII
Paper Title :	Advanced Power Electronics	**Paper Code:**	EEE44122
Maximum Marks :	40	**Time duration:**	3 hours
Total No of questions:	8	**Total No of Pages:**	2
(Any other information for the student may be mentioned here)			

Answer all the Groups

Group A

Answer all the questions of the following $5 \times 1 = 5$

1. a) What is time ratio control?

b) What is a snubber circuit?

c) What are the advantages of GTO over SCR?

d) What is meant by Cuk Converter?

e) What is the advantage of a bridge rectifier over a centre tapped full wave rectifier?

GROUP –B

Answer *any three* of the following $3 \times 5 = 15$

2. A Cuk converter operates at 50kHz switching frequency. The on-state time of the transistor is 12μs. The input voltage is 100V. The load resistance varies between 50-500Ω. Sketch a circuit diagram of a Cuk converter. Considering the converter operating in continuous mode, calculate the voltage ratings of all the circuit components.

3. What are the different methods to implement power factor correction in A.C. to D.C. converter?

4. What is vector control of induction motor? Explain.

5. A buck converter has the following components: V_{in} = 20V, L = 10 mH, C = 20μF, R = 20 Ω, switching frequency f = 20 kHz, and conduction duty cycle k = 0.6. Calculate the output voltage and its ripple in the steady state. Does this converter work in CCM or discontinuous conduction mode (DCM)?

GROUP –C

Answer *any two* of the following $2 \times 10 = 20$

6. Describe the working of four quadrant chopper.

7. With proper circuit diagram and graphs, explain the operation of a PWM inverter.

8. Explain the working principle of DC to DC converterized rectifier.
