

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Power Electronics-I

Subject Code: 4TE05PEL1

Branch: B.Tech (Electrical,EEE)

Semester: 5

Date: 22/03/2017

Time: 02:30 To 05:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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Q-1

Attempt the following questions:

(14)

- a) Name any two commutation techniques used for SCR
- b) Draw the symbol of UJT and its V-I characteristics.
- c) Secondary breakdown takes place in MOSFET. Determine whether the given statement is true or false
- d) IGBT is a _____ controlled device
- e) Which power electronics converter converts a fixed AC voltage into a variable AC voltage while maintain the frequency constant?
- f) Give any two advantages of three phase controlled rectifier over single phase controlled rectifier.
- g) How many junction exist in a structure of a thyristor?
- h) How many diodes are used in a single phase semi-converter?
- i) Which power electronics converter is also known as frequency changer?
- j) Give any four types of firing circuits for SCR.
- k) Define: Holding Current
- l) How many switches are used in a single phase full bridge inverter?
- m) Give any two differences between voltage source inverter and current source inverter
- n) In an integral cycle control for AC voltage controller, if **n** is the number of ON cycles and **m** is the number of OFF cycles, what is the duty cycle of AC voltage



