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SUBJECT CODE NO: B-2144
FACULTY OF SCIENCE & TECHNOLOGY
B.Sc. T.Y. (Sem-V)
Examination November/December- 2022
Electronics Paper- XV
(Power Electronics)

[Time: 1:30 Hours]

[Max. Marks: 50]

“Please check whether you have got the right question paper.”

N.B. i) Attempt all questions.

Q. 1 What is UJT? Describe its construction. Explain its working and draw V-I characteristics. 20

OR

Draw the block diagram of a dc drive control system. Explain various block in it.

Q. 2 Describe the dynamic braking and regenerative braking for a DC motor with neat circuit diagram. 20

OR

Write short notes on any four of the following.

- a) AC drive fundamentals
- b) TRIAC
- c) Control panel inputs for AC drives.
- d) SCR two transistor analogy
- e) operating specification of optical sensor
- f) Limit Switches.

Q. 3 Attempt the following, select correct option from the given alternatives. 10

1. An SCR some times called as a _____.
 - a) Triac
 - b) Diac
 - c) UJT
 - d) Thyristor

2. A UJT is used for _____.
 - a) Amplification
 - b) Switching
 - c) Coupling
 - d) none of the above

3. A triac is equivalent to two SCR's in _____.
 - a) Parallel
 - b) Series
 - c) inverse parallel
 - d) none of the above

4. The current limiting network of DC drives keeps the amount of current flowing through the _____ below a required level.
 - a) motor's armature
 - b) field winding
 - c) both a and b
 - d) None of the above.

5. After firing an SCR the gate pulse is remove the current in the, SCR will
 - a) remain same
 - b) immediately fall to zero
 - c) rise a little and then fall to zero
 - d) Rise up.

6. IR Compensation circuit _____ the speed regulation of the DC drives.
 - a) improves
 - b) decreases
 - c) stop
 - d) both a and b

7. A diac has _____ terminals.
 - a) Three
 - b) Two
 - c) Four
 - d) none of the above

8. When the current drops below the holding current level, -
 - a) SCR will turn off.
 - b) SCR will turn on
 - c) SCR triggers
 - d) none of the above

9. A sensor is a device that converts
 - a) Physical quantity into measurable quantity
 - b) physical quantity in to mechanical signal
 - c) physical quantity in to electrical signal
 - d) Electrical quantity in to physical quantity

10. A variable frequency drive supplies current directly to the _____.
 - a) rotor
 - b) stator
 - c) armature
 - d) none of the above