SEAT No._____ No. of Printed Pages :2

[30]

SARDAR PATEL UNIVERSITY

B.Sc. (Vth SEM.) ELECTRONICS
1st NOVEMBER-2018 EXAMINATION
SUB. - INDUSTRIAL ELECTRONICS- I
SUB.CODE-US05CELE05

TIME:-10:00 am to 1:00 pm MARKS-70

Q-1 Choose correct answer [10]

1. _____ Connection of SCR used for controlling very high current.
   (A) series (C) bi-directional
   (B) parallel (D) None of above
2. UJT mainly used for_____.
   (A) relaxation oscillator (C) amplification
   (B) rectification (D) None of above
3. Thyristor mainly used for_____.
   (A) Rectification (C) Relaxation oscillation
   (B) control power (D) None of above
4. Recommended method to TURN-ON SCR is_____.
   (A) Triggering by A.C signal (C) Triggering by D.C signal
   (B) Triggering by pulse signal (D) None of above
5. SCS means _____.
   (A) silicon unilateral switch (C) silicon port switch
   (B) silicon uni-junction switch (D) None of above
6. Static equalising circuit is compensating circuit to produce uniform voltage in _____ operation of SCR.
   (A) parallel (C) normal
   (B) series (D) None of above
7. TRIAC____ type of device.
   (A) multi-directional (C) bi-directional
   (B) uni-directional (D) None of above
8. _____ Connection of SCR used for controlling very high voltage.
   (A) series (C) bi-directional
   (B) parallel (D) None of above
9. _____ is a circuit which convert DC power in to AC power at desired output voltage.
   (A) Rectifier (C) Filter
   (B) Inverter (D) None of above
10. Dc motor consists of _____.
    (A) SCR (C) Oscillator
    (B) Stator (D) None of above

Q-2 Short answer type question. (any ten) [20]

1 Define string efficiency.
2 State function of gate in SCR.
3 Differentiate between semiconductor and thyristor device.
4 Differentiate between D.C. motor and stepper motor.
5 Define reverse recovery current I_{RR}.
6 List application of thyristor device.
7 Differentiate TRIAC and SCR.
8 State different type of inverter circuit.
9 State principle of operation of stepper motor.
10 Draw symbol of TRIAC and DIAC.
11 Define phase angle.
12. What do you mean by relaxation oscillator.

[P.T.O.]

Q.3 List the thyristor family components and Discuss principle of operation and characteristics of SCR. [10]

OR

Q.3(A) Discuss different method of turning on a SCR with TURN-ON characteristics. [06]

Q.3(B) Briefly discuss TURN OFF mechanism of SCR. [04]

Q.4 Describe the series operation of SCR with necessary diagram and compensation circuits. [10]

OR

Q.4 Explain the parallel operation of SCR with necessary diagram and compensation circuits. [10]

Q.5(A) Discuss characteristics and operation of UJT with necessary diagram. [06]

Q.5(B) Briefly explain UJT as a relaxation oscillator. [04]

OR

Q.5(A) Discuss use of SCR as static AC circuit breaker. [05]

Q.5(B) Explain different triggering mode of TRIAC with necessary diagram. [05]

Q.6(A) Explain parallel inverter giving necessary diagram and waveforms. [06]

Q.6(B) Write a short note on stepper motor [04]

OR

Q.6 Draw the schematic diagram of D.C motor and discuss its working in detail. [10]

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