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No. Of Printed Pages: 2

SARDARPATEL UNIVERSITY
S.Y.B.Sc. (IVth SEM.)- Instrumentation (vocational)
SUBJECT- POWER ELECTRONICS
COURSE CODE-USO4CINV01
6th APRIL-2016

Time: -10:30am to 1:30pm **Marks:-70**

- Q-1 Multiple choice Questions. [10]**
1. The range of output frequency of a relaxation oscillator using _____ is very small.
 (a) SUS (c) CSCR
 (b) UJT (d) none of above
 2. In phase control using TRIAC use to snubber circuit to avoid the high _____ turn on device.
 (a) di/dt (c) dv/di
 (b) dv/dt (d) all of above
 3. Thyristor device mainly used for _____.
 (a) rectification (c) power control
 (b) amplification (d) all of above
 4. The turn on time depends on the _____.
 (a) anode circuit parameter (c) rise time
 (b) gate signal amplitude (d) all of above
 5. SCR is a _____ layer device.
 (a) Three (c) Four
 (b) Two (d) none of above
 6. SCR are ~~connected in parallel~~ to improve the _____ rating.
 (a) current (c) both (A) and (B)
 (b) voltage (d) none of above
 7. _____ is bi-lateral device with two terminals.
 (a) TRIAC (c) SCR
 (b) DIAC (d) none of above
 8. The disadvantage of parallel connection of compensation is that loss of _____ due to series resistance.
 (a) current (c) voltage
 (b) power (d) none of above
 9. _____ used to insulate the conducting parts of electric iron and to avoid the shock to the operator.
 (a) Porcelain cleats (c) both (A) and (B)
 (b) Asbestos sheet (d) none of above
 10. The Megger consists of magneto- generator and _____ combined in same box.
 (a) ohm-meter (c) current-meter
 (b) volt-meter (d) none of above

P.T.O

- Q-2 Short answer type Question.(attempt any TEN) [20]**
1. List the points designing gate control circuit of turning –on mechanism of an SCR.
 2. Define string efficiency.
 3. Which factor contributes to internal losses of thyristor?
 4. Differentiate TRIAC and SCR.
 5. Draw RC snubber circuit and briefly explain it.
 6. What is relaxation oscillator?
 7. Draw SCS symbol and characteristics.
 8. Enlist thyristor application.
 9. What is cycloconverter? And list its application.
 10. Briefly explain Thermostat principle in heating application.
 11. Briefly explain 'Continuity and Short circuit test' of an Electric Toasters.
 12. List different parts of Non-automatic iron.
- **Q-3 (A) Write note on a series operation of an SCR with necessary figure. [6]**
Q-3(B) Explain TURN-ON mechanism of an SCR with its characteristics. [4]
- OR**
- Q-3 (A) Write note on a parallel operation of an SCR with necessary figure. [6]**
Q-3(B) Explain principle operation of an SCR with its characteristics. [4]
- Q-4(A) Explain construction and Triggering mode of TRIAC with necessary figure. [6]**
Q-4(B) Explain phase control using TRIAC with necessary fig. [4]
- OR**
- Q-4(A) Discuss constructional mechanism and characteristics of UJT. [6]**
Q-4(B) Explain operation of UJT as relaxation oscillator. [4]
- Q-5 Explain Thyristor applications :**
- (1) Over voltage protection. [5]
 - (2) Pulse circuit [5]
- OR**
- Q-5(A) Explain Static breaker circuit. [5]**
Q-5(B) Explain Astable and Pulse stretcher circuits using SCS. [5]
- Q-6 Explain construction and working principle of Megger. List different tests can be performed by Megger, discuss any three of its. [10]**
- OR**
- Q-6(A) Draw an assembled diagram of washing machine and explain it. And enlist the possible faults. [5]**
Q-6(B) Draw the circuit of automatic toaster and explain it. And enlist possible faults. [5]

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