

B. Sc. (Physics) Semester-V

Paper-505: Power Electronics and Solar Energy

Code: 4298

April 2016

MARKS: 70

TIME: 2:30 HOURS

Instructions: (1) Symbols have their usual meaning.
(2) Figures on right hand side show marks of that question.

1. (a) Explain the transformer coupled Push – Pull circuit with a neat diagram. [09]
(b) Write in short about thermal run- away and need for heat sink. [05]
- OR
1. Write in detail about transformer coupled Class A amplifier. [14]
2. (a) Describe the operation of Zener Diode as a voltage regulator with a neat diagram. [11]
(b) Write the differences between unregulated and regulated power supply. [03]
- OR
2. Write in detail about solar angles. [14]
3. (a) Write short notes on : [10]
(1) Ripple and Voltage regulation.
(2) Op-Amp series regulator.
(b) Write in brief about Adjustable positive voltage regulators. [04]
- OR
- 3.(a) Write notes on solar constant. [07]
(b) Write notes on solar time. [07]
4. What is solar pond? Describe the construction and working of solar pond. Write its applications. [14]
- OR
4. Describe the basic design of Flat-Plate collector. Derive equation for energy balance and collector efficiency. [14]
5. (a) What do you understand by Class A, Class B and Class C power amplifiers? [10]
(b) Derive an expression for collector efficiency of power amplifiers. [04]
- OR
5. Show that maximum collector efficiency of Series-Fed Class A power amplifier is 25% [14]