

Day : Friday
Date : 31/05/2019

Time : 02.30 PM TO 05.30 PM
Max. Marks : 60

S-2019-2747

N. B. :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labelled diagram **WHEREVER** necessary.
- 4) Assume suitable data, if necessary.

- Q.1 a) Write 'classification of inductors' and its symbols. (04)
b) Derive expression for 'capacitance' and 'Impedance' of capacitor. (06)

OR

Describe the construction of Transformer. Explain how transformers are tested. Also write the applications of transformer. (10)

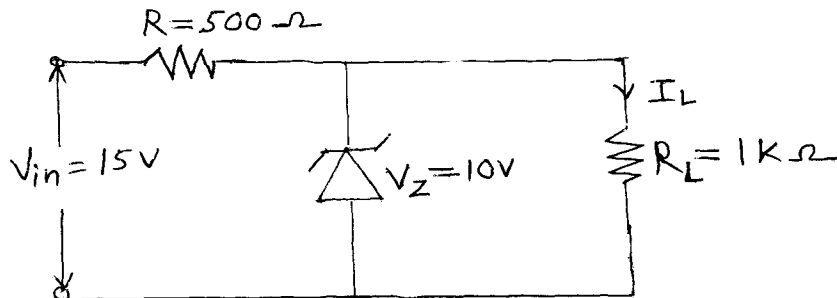
- Q.2 a) Design L-type filter to provide 60 V d.c. at 75 mA with ripple of less than 1% when operating from a full wave rectifier. (06)
b) Compare inductor filter and capacitor filter. (04)

OR

Design capacitor filter with full wave rectifier. (10)

- Q.3 a) Determine the minimum and maximum values of load current for given circuit of shunt regulator. What is the minimum value of load resistor (R_L)? (06)

The zener diode has: $V_Z = 10V$, $I_Z(\min) = 2 \text{ mA}$, $I_Z(\max) = 150 \text{ mA}$
and $R_Z = 0$



- b) Describe working of transistor shunt voltage regulator. (04)

OR

Design a power supply using π - section filter to give the d.c. output of 50 V at 100 mA with ripple not exceed 0.10 %. (10)

P. T. O.

Q. 4 Draw circuit diagram of SMPS and explain its working. Also write advantages and applications of SMPS. (10)

OR

a) Write comparison of Linear power supply and SMPS. (06)

b) Draw circuit of step down switching regulator and explain it. (04)

Q. 5 a) Draw block diagram of single channel DAS and explain it. (06)

b) Write various application of DAS. (04)

OR

a) Draw block diagram of Data logger and explain it. (06)

b) Write objectives of DAS (04)

Q. 6 Draw PIN configuration of LM-380. Also describe the operation of LM-380 as audio power amplifier. Also write applications of LM-380. (10)

OR

a) Describe working of Tone control circuit. (05)

b) Describe operation of Graphic equalizer circuit. (05)

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