B.Tech. SEM -VI Electronics 2014 Course (CBCS) : WINTER - 2018

SUBJECT : ELECTRONIC CIRCUIT DESIGN

Day : Saturday **W-2018-2482** Time : 10.00 AM TO 01.00 PM

Date : 17/11/2018 Max. Marks : 60

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)** Give classification of electronic components. Also write comparison of passive and active components. **(04)**

b) Write short notes on: **(06)**

i) Testing of Resistors
ii) Measurement of resistance value

OR

Derive expression for inductance of coil. Also explain "Q-factor of Inductor" and "Colour coding of Inductor". **(10)**

Q. 2 **a)** Calculate the value of the filter capacitor required to obtain a ripple of 10 % at a load of 15 mA to d.c. load of 10 k Ω. **(06)**
Also calculate:
i) P. I. V. of the diodes used for full wave rectifier circuit.
ii) The peak current flowing through the diodes.

b) Derive the expression for the ripple factor of the inductor filter with full wave rectifier. **(04)**

OR

Design 'π - section' filter. Also compare RC filter and LC filter. **(10)**

Q. 3 **a)** For a zener shunt regulator if **(06)**
$V_Z = 20V$, $R_S = 500\ \Omega$, $R_L = 1K\Omega$ and input voltage varies from 32 to 40 V. Find the minimum and maximum values of zener current.

b) Draw pin configuration of voltage regulator IC-7805. Also writes its applications. **(04)**

OR

Design a power supply using a 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 Internal architecture of LM 3524 and explain its working. **(10)**

OR

a) Compare linear power supply and SMPS. **(06)**

b) Write applications of IC-3524. **(04)**

Q. 5 Draw and explain "Single channel Data Acquisition System" and "Multi channel Data Acquisition System". Also write application of DAS. **(10)**

OR

a) Describe "construction of DAC". **(05)**

b) Write note on Data logger **(05)**

Q. 6 Design a power amplifier using TBA 810 for output power of 4 W of 8 Ω load, it provides gain of 100, input resistance greater than 100 k Ω with bandwidth 20Hz to 20 kHz. **(10)**

OR

a) Describe the operation of LM-380 audio power amplifier. **(06)**

b) Write applications of LM-380. **(04)**

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