

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2014 COURSE)  
B.Tech.Sem - VI ELECTRONIC : WINTER- 2022  
SUBJECT : ELECTRONIC CIRCUIT DESIGN

Day : Wednesday

Time : 10:00 AM-01:00 PM

Date : 30-11-2022

W-13392-2022

Max. Marks : 60

**N.B.**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.

**Q.1** What are different types of resistors? What are the factors to be considered while selecting resistor for any application. Give example. (10)

**OR**

Write notes on: (10)

- a) Audio frequency transformer
- b) Active components

**Q.2** a) Draw the circuit diagram of notch filter. Show approximate waveforms. (05)  
b) Design state variable BPF to have  $f_L = 10.3$  kHz and  $f_H = 10.9$  kHz. (05)

**OR**

Draw and explain the circuit diagram of all pass filter. Design an adjustable all pass filter to have phase lag adjustable from  $80^\circ$  to  $100^\circ$ . The signal is 1V, 5kHz. (10)

**Q.3** With a neat diagram explain the operation of transistor shunt regulator. (10)

**OR**

Write short notes on: (10)

- a) Short circuit protection
- b) Fold back current limiting

**Q.4** Which are the different topologies used in SMPS? Discuss the factors for selecting topology for particular application. (10)

**OR**

With neat diagram explain operation of half bridge converter. Draw waveforms. (10)

**Q.5** Describe the role of sample and hold circuit. Give suitable example. (10)

**OR**

With suitable diagram, explain multichannel DAS using digital multiplexing. (10)

**Q.6** Design a power amplifier using LM 386 for following specifications: (10)

$$P_0 = 700 \text{ mV}$$

$$R_L = 8 \Omega$$

$$BW = 20 \text{ Hz to } 20 \text{ kHz}$$

$$\text{Gain} = 26\text{dB to } 46 \text{ dB.}$$

**OR**

With the help of circuit diagram explain the working of Class C amplifier. (10)

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