

Total No. of Questions : 8]

SEAT No. :

PC2802

[6352]-26

[Total No. of Pages :3

S.E. (Electronics/E & TC)/ (Electronics Engg. (VLSI Design and Technology))/ (Electronics & Communication-Advanced Communication Technolgy)
ELECTRONIC CIRCUITS

(2019 Pattern) (Semester- III) (204181)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7. or Q.8.
- 2) Figures to the right indicates full marks.
- 3) Draw a neat diagram wherever necessary.
- 4) Assume suitable data, if necessary.

- Q1)** a) Define voltage regulator, line regulation and load regulation in case of voltage regulator. [6]
- b) Calculate min and max range of variable resistance R_2 for an adjustable voltage regulator using LM317 to get output voltage of +5 V to +24 V, assume $R_1=240 \Omega$, $I_{adj}=100 \mu A$. [6]
- c) Compare Linear and switch mode power supply. [6]

OR

- Q2)** a) Draw and explain the Block diagram of DC Voltage regulated Power Supply. [6]
- b) Determine the range over which voltage range can vary in LM317 voltage regulator if the values of R_1 is 240Ω and R_2 taken as $4.7 K\Omega$ potentiometer. Assume $I_{adj}=100\mu A$. Draw the typical connection diagram. [6]
- c) Explain the concept of Low Drop Out (LDO) in detail. [6]

- Q3)** a) Draw the block diagram of OPAMP and explain each block in detail. [6]
- b) Explain the following op-amp parameters: [6]
- i) Input offset voltage
 - ii) Input Bias current
 - iii) Slew Rate.
- c) Compare Ideal and Practical Parameters of an OP-AMP. [5]

OR

P.T.O

- Q4)** a) Explain the following parameters of Op-Amp [6]
- i) Slew rate
 - ii) CMRR
 - iii) Gain bandwidth product
- b) Explain from the block diagram the Output stage of Op Amp. [5]
- c) Draw and explain an Inverting summing amplifier with three inputs with expression for its output voltage. [6]

- Q5)** a) Draw and explain working of Inverting Symmetrical Schmitt trigger circuit using op-amp., also give the equation for triggering points. [6]
- b) Draw and write the output equation of. [6]
- i) Voltage follower
 - ii) Non-Inverting amplifier
- c) Draw and explain Practical integrator circuit with equation of output voltage. What are the limitations of an ideal integrator? [6]

OR

- Q6)** a) Draw a circuit diagram of three op-amp instrumentation amplifiers and write its output equation. [6]
- b) Draw and explain Practical differentiator circuit with equation of output Voltage. Draw the frequency response of the differentiator . [6]
- c) Draw and explain the triangular wave generator using an op-amp with waveforms. [6]

- Q7) a)** Define the following terms w.r.t PLL: [6]
- i) Free running Frequency
 - ii) Lock range
 - iii) Capture range
- b) Draw the block schematic of PLL and explain each block in detail. [5]
- c) With the neat circuit diagram explain Current to Voltage Converter. [6]

OR

- Q8) a)** With the neat circuit diagram explain Voltage to Current Converter. [6]
- b) Write short notes on Frequency Multiplier using PLL. [6]
- c) Compare the various methods of A/D Conversion. [5]

