

Total No. of Questions : 8]

SEAT No. :

P9101

[Total No. of Pages : 2

[6179]-226

S.E. (Electronics/E & TC)

ELECTRONICS CIRCUITS

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

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Attempt 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 indicate full marks.
- 3) Assume suitable data, if required.
- 4) Neat diagrams must be drawn wherever necessary.

Q1) a) Explain the IC 317 voltage regulator with diagram and write its output voltage equation. [6]

b) IC Voltage Regulator using IC 317, Calculate the variable output voltages, assume $R_1 = 240 \Omega$, $R_2 = 5K\Omega$ (pot) and $I_{adj} = 100 \mu A$. [6]

c) Explain concept of Switch Mode Power Supply (SMPS) and list type of SMPS. [6]

OR

Q2) a) Draw and explain the concept of Current boosting in Voltage regulator. [6]

b) IC Voltage Regulator using IC 317, Calculate values of R_2 for the output voltage 5v to 10v, assume $R_1 = 240 \Omega$ and $I_{adj} = 100 \mu A$. [6]

c) Write a short note on "Low drop out Voltage regulator". [6]

Q3) a) Draw block diagram of OP - AMP. And explain the function of each block. [5]

b) Define the following characteristics of OPAMP. [6]

i) Input offset voltage

ii) Slew Rate

iii) PSRR (Power Supply Rejection Ratio)

c) Explain the concept of Current mirror circuit. [6]

OR

P.T.O.

- Q4)** a) List types of differential amplifiers. Draw dual input balanced output differential amplifier. [5]
 b) State ideal and typical values of OP AMP parameters (IC 741). [6]
 c) Explain with circuit diagram necessity of level shifting in OP AMP. [6]

- Q5)** a) Draw and explain Inverting amplifier. Draw its input and output waveforms. [6]
 b) Design a practical differentiator circuit for the input signal having maximum frequency of operation 250 Hz. [6]
 c) Draw Inverting Schmitt trigger circuit using OP AMP. Write the equation of V_{LTP} and V_{LTP} . [6]

OR

- Q6)** a) Compare open loop and close loop comparator in OP AMP. [6]
 b) Design a practical Integrator circuit to operate at $f = 4$ KHz and gain equal to 4. [6]
 c) Draw and explain Instrumentation using three OP AMP. [6]

- Q7)** a) Draw and explain V to I Converter using grounded load using OP AMP. [5]
 b) Draw and explain the circuit of R/2R DAC using OP AMP. [6]
 c) With the help of neat block diagram explain operation of PLL. [6]

OR

- Q8)** a) Draw and explain I to V Converter using OP AMP. [5]
 b) Draw and explain the circuit of binary weighted resistor DAC using OP AMP. [6]
 c) Define the following specifications of ADC : [6]
 i) Resolution
 ii) Accuracy
 iii) Conversion time

