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SEAT No. :

PE4260

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S.E. (Electronics and Computer Engineering)

ELECTRONIC CIRCUITS

(2019 Pattern) (Semester - III) (204202)

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 indicate full marks.***
3) ***Draw neat diagram wherever necessary.***
4) ***Assume suitable data, if necessary.***

Q1) a) Draw and explain the block diagram of LM317. **[6]**

b) Define the line and load regulation in case of voltage regulator. What are the ideal values for same? **[6]**

c) Write the short note on low drop out voltage regulator. **[6]**

OR

Q2) a) Explain current boosting voltage regulator using LM317. **[6]**

b) Determine the range over which voltage range can varied in LM317 voltage regulator if the values of R_1 is 240 ohm and R2 taken as 5K potentiometer. Assume I_{adj} =100uA. Draw the typical connection diagram. **[6]**

c) Compare linear and switching power supply. **[6]**

Q3) a) Draw internal the block diagram of OPAMP and explain in detail. **[6]**

b) Explain the following op-amp parameters: **[6]**

i) Input offset voltage

ii) CMRR

iii) Slew Rate

c) What is current mirror? Why it is used? **[5]**

OR

Q4) a) Explain the following parameter of Op-Amp **[6]**

i) Slew rate

ii) PSRR

iii) Gain bandwidth product

b) Explain the level shifter stage of Op-Amp in detail. **[5]**

c) Justify, how constant current source used in placed of R_E to improve the CMRR in differential Amplifier. **[6]**

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Q5) a) Draw neat circuit diagram of: **[6]**

i) Schmitt trigger

ii) Precision amplifier

b) Explain Zero crossing Detectors using op-amp with necessary waveforms. **[6]**

c) List important characteristics of comparator. What are the advantages of Schmitt trigger over comparator? **[6]**

OR

Q6) a) Draw circuit diagram of three op-amp instrumentation amplifier and write its output equation. **[6]**

b) Explain Practical differentiator circuit with neat circuit diagram. What are the limitations of ideal differentiator? **[6]**

c) Draw the circuit diagram of practical differentiator and write equation for output voltage (Vo). **[6]**

Q7) a) Define the following terms w.r.t PLL: **[6]**

i) Free running Frequency

ii) Lock range

iii) Capture range

iv) Pull in Time

b) Draw the block schematic of PLL and explain each block in detail. **[5]**

c) List the various methods of A/D Conversion. Compare them and explain which one is fastest. **[6]**

OR

Q8) a) Draw block diagram and explain any one application of ICPLL 565 in detail. **[6]**

b) Write short notes on application of PLL : **[6]**

i) Frequency Multiplier

ii) FM Demodulator

c) Draw and explain successive approximation A/D converter. **[5]**

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