**PB3621**

**[6261]-26**

## S.E. (Electronics /E&TC)
## ELECTRONIC CIRCUITS
## (2019 Pattern) (Semester-III) (204181)

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

1) *Attempt Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.*
2) *Figures to the right indicate full marks.*
3) *Assume suitable data if necessary.*
4) *Neat diagrams must be drawn wherever necessary.*

**Q1)** a) Define Voltage regulation. Explain the any three performance parameters of voltage regulator. **[6]**

b) IC Voltage Regulator using IC 317, Calculate values of R2 for the output voltage 10v to 20v, assume R1= 240 Ω and Iadj = 100μA. **[6]**

c) Compare Linear power supply and Switch Mode Power Supply (SMPS). **[6]**

OR

**Q2)** a) Draw and explain the block diagram of Power Supply. **[6]**

b) IC Voltage Regulator using IC 317, Calculate values of R2 for the output voltage 5v to 10v, assume R1= 240 Ω and Iadj = 100μA. **[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) CMRR (Common Mode Rejection Ratio)

c) Compare Concept of Voltage Series and Voltage Shunt in OP AMP. **[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 and explain Inverting Schmitt trigger circuit using OP AMP. **[6]**

OR

***Q6)*** a) Compare Inverting and Non-Inverting amplifier 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 square wave Generator using 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

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