Total No. of Questions : 8]

SEAT No. :

PE4255 **[6582]-26** [Total No. of Pages : 2

S.E. (Electronics /E &TC/Electronics (VLSI Design & Tech.)/E.C (A.C.T.))

ELECTRONIC CIRCUITS (EC)

(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 indicate full marks.***
3) ***Assume suitable data, if necessary.***
4) ***Neat diagram must be drawn wherever necessary.***

Q1) a) Define Voltage regulation. Explain Concept of Low drop out Voltage regulator. **[6]**

b) IC Voltage Regulator using IC 317, Calculate values of R2 for the output voltage 5v to 10v, assume R1=240Ω and Iadj = 100 μA. **[6]**

c) Draw and explain with Block diagram 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 15v to 30 v, assume R1=240Ω and Iadj = 100 μA. **[6]**

c) Write a Short note on "Current boosting Voltage regulator". **[6]**

Q3) a) Draw Block diagram of OP-AMP. And explain the function of each block. **[6]**

b) Define the following Characteristics of OP-AMP **[6]**

i) Input offset Current

ii) Input offset voltage

iii) Slew Rate

c) Compare Concept of open loop and Close loop configuration of OP-AMP. **[5]**

OR

Q4) a) State Ideal and Typical values of OP-AMP parameters (IC 741). **[6]**

b) Draw the equivalent circuit of OP-AMP with ideal transfer curve. **[6]**

c) Explain the need of level shifting in OP-AMP. **[5]**

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Q5) a) Draw and explain non-Inverting amplifier with its input and output waveforms. **[6]**

b) Design a Practical differentiator circuit for the input signal having maximum frequency of operation 150 Hz. **[6]**

c) Draw and explain Instrumentation amplifier circuit using three 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 = 2 KHz and gain equal to 4. **[6]**

c) Draw and explain Zero Crossing detector using OP-AMP. **[6]**

Q7) a) Draw and explain V to I Converter using grounded load using OP- AMP. **[5]**

b) Explain the disadvantages of binary weighted resistor circuit over 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 flash type ADC using OP-AMP. **[6]**

c) Define the following specifications of ADC **[6]**

i) Resolution

ii) Accuracy

iii) Quantization errors

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