Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 91448

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Fourth Semester

Electronics and Communication Engineering

EC 6404 – LINEAR INTEGRATED CIRCUITS

(Common to Medical Electronics/Robotics and Automation Engineering)

(Regulations 2013)

(Also Common to PTEC 6404 – Linear Integrated Circuits for B.E. (Part-Time) – Third Semester – Electronics and Communications Engineering (Regulations 2014))

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. Mention the characteristics of an ideal op-amp.
2. What are the advantages of Wilson current source ?
3. List some of the nonlinear applications of op-amps.
4. State the limitations of the basic differentiator circuit ?
5. Name the three stages through which PLL operates ?
6. Why is a low pass filter used in PLL ?
7. Where is the successive approximation type ADC used ?
8. State the advantages of dual slope ADC.
9. What is the purpose of having input and output capacitors in three terminal IC regulators ?
10. Write the functions of an isolation amplifier.

PART – B (5×13=65 Marks)

11. a) Design a Widlar current source and obtain the expression for output current. Also prove that Widlar current source has better sensitivity than constant current source. (13)

(OR)

b) Obtain the frequency response of an open-loop op-amp and discuss about the methods of frequency compensation. (13)

12. a) Explain the operation of the Regenerative comparator. (13)

(OR)

b) Discuss in detail the operation of Monostable multivibrator using op-amp. (13)

13. a) With a neat diagram explain the variable transconductance technique in analog multiplier and give its output equation. (13)

(OR)

b) What are important building block of Phase Locked Loop (PLL) ? Explain its working principle. Derive the expression for lock range and capture range. (13)

14. a) Which is the fastest ADC and why ? Explain the working of such ADC with necessary diagram. (13)

(OR)

b) List the various types of digital to analog converters. Explain any two in detail. (13)

15. a) What are the modes of operation of a timer ? Draw the functional diagram of a square wave generator using timer and derive its duty cycle. (13)

(OR)

b) Explain the working principle of switched capacitor filter. (13)

PART – C (1×15=15 Marks)

16. a) Draw the functional diagram of IC 723 regulator. Explain how it can be used as a high voltage regulator. (15)

(OR)

b) Discuss on the current fold back characteristics of IC 723 with necessary circuit diagrams and graphical outputs. (15)